

MESG
MESTRADO EM ENGENHARIA
DE SERVIÇOS E GESTÃO

**Enlarging the Opportunities of Accessing Quality Higher Education in
Myanmar: the COE Project**

Yin Hline Zin

Master Dissertation

FEUP's Supervisor: Prof. Jorge Freire de Sousa
MOST: Dr. Myo Myint (YTU)
Dr. Hla Myo Tun (MTU)



Universidade do Porto

Faculdade de Engenharia

FEUP

Department of Industrial Engineering and Management
Faculty of Engineering, University of Porto

2014.09.01

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

Abstract

Technology education system of Myanmar is poorly planned, mismanaged and lack opportunities for undergraduate students across the country to access the qualified educational resources comparing to other Asian countries. Indexes of human capital show poor situation in several factors such as knowledge, skills, understanding and capabilities of staff.

In an effort to find possible solutions for improving the technology education system of the country, this thesis intends to get standards and augment opportunities for the access to qualified higher education in Myanmar. This study is a combination of qualitative and quantitative analysis based on the center of excellence (COE) project for engineering education that emerged from the reform strategies by Ministry of Science and Technology.

This study intends to explore and identify the processes and functions to improve technological field, to obtain good effects of COE and to make the COE project accessible for the students from financially disadvantaged families with the help of human resource management, social policy and development models. Moreover, while addressing the challenges and needs of tertiary education in Myanmar, our aim is to propose solutions to increase its transversal penetration on society by using Human Resource Management (HRM) models derived from the empirical study conducted on the basis of the questionnaire results from COE students.

It was found that COE project is well perceived among the current students. However, there are opportunities to improve in the area of library services, teaching materials and teaching staff. Especially, students from the poor families in rural areas cannot afford to study at COEs. It is crucial to provide necessary information to seek financial support. The study suggests MOST to link poor students from rural area with donor foundations. New HRM model to create opportunities for accessing higher technology education for financially disadvantaged students has been designed and introduced, and recommendations were given to COEs and MOST.

Keywords

Human Resource Management, Technology Education System, Center of Excellence

Acknowledgments

I would like to show my sincere thank to Professor João Falcão e Cunha, course director of Master of Services Engineering and Management, University of Porto (UP) for his encouragement, help and assistance to me during my research process.

My special thank to my supervisor Professor Jorge Freire de Sousa, professor of the Faculty of Engineering at UP for his motivation, patience and support as well as effort to make my research go smoothly.

My gratitude thank to Professor Dr. Aye Myint, rector of Yangon Technological University (YTU) of Myanmar for his kind permission allowing me to do the research survey at the university.

Moreover, my deepest thank to the responsible persons Dr. Myo Myint, associate professor at YTU and Dr. Hla Myo Tun, associate professor at Mandalay Technological University (MTU) of Myanmar for his fruitful help allowing me to use data and information for my research analysis.

Also, I would like to show my special thank to Dr. Kyaw Soe Lwin, associate professor at Technological University Mawlamyine for helps and suggestion on my research paper.

Furthermore, I would like to show my sincere thank to Dr. Myo Kyaw Thu, associate professor (MOST, Nay Pyi Taw) providing me the further information about Ministry of Science and Technology (MOST).

And special thank to my helpful friend Mr. Tin Ko Oo, Master student at Ghent University, Belgium, for his helps and advices to my research paper.

Last but not least, I would like to show gratitude and special thank to my beloved family who always encourages and motivates me to keep moving forward and fighting all obstacles and difficulties. Without kind help, motivation and assistance from all above respectful responsible people, I totally believe that I could not make my research paper happen.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

Contents

Abstract.....	iii
Acknowledgments	iv
Abbreviations	vii
List of tables.....	viii
List of figures	xi
1 Introduction	1
1.1 Tertiary technology education system of Myanmar	1
1.2 Centers of Excellence (COE).....	2
1.2.1 Yangon Technological University (YTU)	3
1.2.2 Mandalay Technology University (MTU)	3
1.2.3 Transformations in technology education system	3
1.3 Implementation of a reform strategy	4
1.4 Background of COE Project	5
1.5 Problem statement.....	7
1.6 Objectives	8
1.7 Research questions.....	8
1.8 Document structure	9
2 Contextualization and Literature Review.....	10
2.1 Higher education context in Myanmar	10
2.2 Challenges and needs of higher education in Myanmar	10
2.3 Concept of COEs	11
2.4 Quality and improvement in higher education.....	12
2.5 Teaching strategies.....	14
2.5.1 Theories of teaching	14
2.5.2 Teaching methods.....	17
2.6 Example of departmental Human Resource Management	20
3 Research Methodology	23
3.1 Preparation stage.....	24
3.2 Method choosing stage.....	25
3.3 Data collection	25

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

3.4	Data analysis	26
4	Survey Results	28
4.1	Access to high-quality education, academic facilities and learning resources in COE	28
4.2	Condition of library system	30
4.3	Results for the condition of study rooms	32
4.4	Results for internet access	33
4.5	Differences between COEs and other technological universities.....	34
4.6	Benefits of COE	36
4.7	Interesting in studied majors	38
4.8	Perception on qualified students entrance	39
4.9	Supporting for students.....	40
4.10	Place of students.....	41
4.11	Suggested improvement at COE	43
5	Proposals	45
5.1	Suggestions and recommendations for COEs.....	45
5.2	Design proposal to support financially disadvantaged students	45
5.3	HRM planning for MOST	48
5.3.1	Manpower planning.....	49
5.3.2	Recruitment.....	51
5.3.3	Performance management.....	52
5.3.4	Training & Development	52
5.3.5	Teachers and students relations	53
6	Conclusions and Future Work	54
	References.....	57
	Appendix A: Survey Questionnaire.....	60

Abbreviations

B.E	Bachelor of Engineering
B.Tech	Bachelor of Technician
BRD	Department of Biotechnological Research
COEs	Centers of Excellence
DAE	Department of Atomic Energy
DAST	Department of Advanced Science and Technology
DTVE	Department of Technical and Vocational Education
DTPC	Department of Technology Promotion and Coordination
FESR	Framework for Economic and Social Reforms
GTC	Government Technological College
GTI	Government Technical Institute
HDI	Human Development Index
HRM	Human Resource Management
MAEU	Myanmar Aerospace Engineering University
M.E	Master of Engineering
MOE	Ministry of Education
MOST	Ministry of Science and Technology
MSMERD	Material Science & Material Engineering Research Department
MTU	Mandalay Technological University
MIT	Mandalay Institute of Technology
MSTRD	Myanmar Scientific and Technological Research Department
NAL	National Analytical Laboratory
THS	Technical High School
TRD	Department of Technological Research
TU	Technological University
UCS	University of Computer Studies
YTU	Yangon Technological University

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

List of tables

Table 2.1	The relationships of four basic teaching theories.....	15
Table 2.2	Annie's key teaching principles.....	16
Table 2.3	Diagrammatic representation of Janice's practical theory as constructed by Janice in early 1992.....	17
Table 3.1	Response rates of the questionnaire.....	26

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

List of figures

Figure 1.1	Organizational structures of MOST.....	2
Figure 1.2	Technology education system.....	4
Figure 1.3	Locations of COE in Myanmar.....	6
Figure 2.1	The model for student orientation, teaching method and level of engagement...	18
Figure 2.2	Reference model for departmental human resource management plan.....	21
Figure 3.1	Representation of the steps of the Methodology.....	23
Figure 4.1	The column chart results of YTU and MTU for question 1 and 2.....	29
Figure 4.2	Line chart results of COEs for questions 3, 4 and 5.....	31
Figure 4.3	Bar chart results of COEs for question 6.....	33
Figure 4.4	Results for internet access from YTU.....	34
Figure 4.5	Results for internet access from MTU.....	34
Figure 4.6	Column chart results for question 8 and 9.....	35
Figure 4.7	Column chart results for question 10 and 11.....	37
Figure 4.8	Bar chart results for question 12.....	38
Figure 4.9	Column chart results for question 13.....	39
Figure 4.10	Column chart results for question 14.....	41
Figure 4.11	Column chart results for question 15.....	42
Figure 4.12	Line chart results for question 16 and 17.....	43
Figure 5.1	Design of HRM model for the opportunity of accessing higher technology education for financially disadvantaged students.....	46
Figure 5.2	Information support service model for financially disadvantaged students.....	48
Figure 5.3	HRM planning for MOST.....	49
Figure 5.4	Manpower planning of MOST.....	50
Figure 5.5	Human resource development in future.....	51

1 Introduction

1.1 Tertiary technology education system of Myanmar

Tertiary education system of Myanmar was traditionally run by Ministry of Education (MOE) and the majority of the higher education institutions are under the management of MOE. However, other ministries also provide tertiary education for specialized areas such as engineering, medical, computer studies, aerospace, maritime studies, forestry, agriculture, veterinary medicine and arts and culture, etc. Nowadays, there are 66 higher education institutions under the MOE and 97 institutions under 12 other ministries. (MOE, 2012)

Ministry of Science and Technology (MOST) is one of the ministries providing tertiary education and operating higher education institutions in the areas of engineering and computer studies. It was founded in October 1996 in order to promote and develop science and technology in Myanmar. On January 1997, MOST took responsibility for the Yangon Technological University, Mandalay Technological University, University of Computer Studies, and the Department of Technical and Vocational Education (DTVE) from the Ministry of Education.

Objectives of MOST are:

- “- To carry out Research and Development works for the national economic development.*
- To utilize the national resources so as to develop the national economy, and raise the living standard of the people.*
- To disseminate the technological know-how achieved from the Research and Development works to the industrial and agricultural sectors in order to enhance the production.*
- To plan and carry out human resources development programs so as to obtain specialists in Science and Technology.*
- To analyze and test raw materials finished products, and to implement quality control and standardization of industrial products.*
- To coordinate research, development and use of Atomic Energy” (MOST, 2004).*

Departments of MOST can be categorized into the areas of human resource development and research development. Departments under research development include the Myanmar

Scientific and Technological Research Department (MSTRD), Department of Atomic Energy (DAE), Department of Technology Promotion and Coordination (DTPC), MSMERD, TRD, Department of Biotechnological Research (BRD) and National Analytical Laboratory (NAL). Under the human resource development, there are the Department of Technical and Vocational Education (DTVE) and the Department of Advanced Science and Technology (DAST), both of which comprise several technological and computer universities.

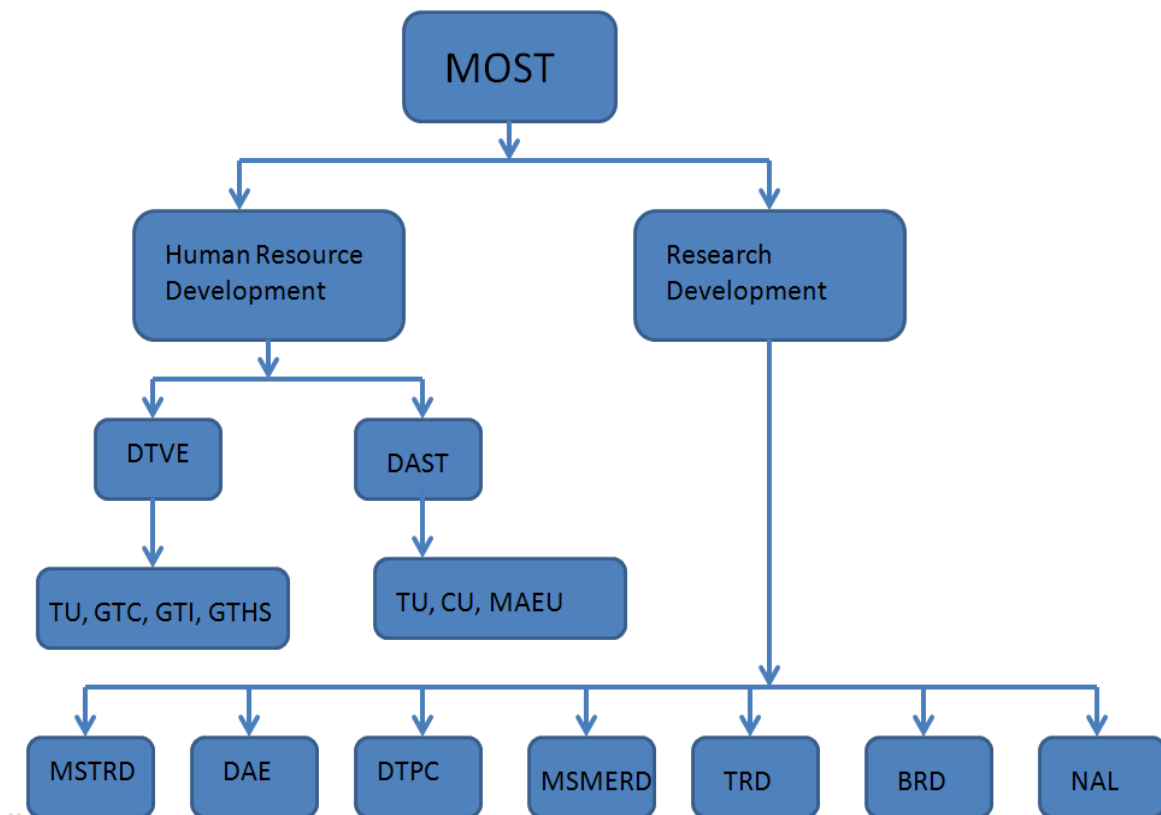


Figure 1.1 - Organizational structure of MOST (Myat, 2012)

1.2 Centers of Excellence (COE)

In order to provide quality training of manpower and foster state of the art research and development in science and technology, MOST transformed two of its major technological universities as the Centers of Excellence (COE) in March 2012.

1.2.1 Yangon Technological University (YTU)

Yangon Technological University (YTU) started as a Department of Engineering in 1924 under the University of Yangon. At that time, YTU could offer only a four-year degree course for civil engineering. In 1947, it was upgraded to the Faculty of Engineering. After shifting to new campus area in 1961, Yangon Institute of Technology (YIT) was renamed under the Ministry of Education. Then Yangon Technological University (YTU) was changed in the 1st July of 1998 (YTU, 2013).

1.2.2 Mandalay Technology University (MTU)

Mandalay Institute of Technology (MIT) was founded in 1991 under the Ministry of Education. MIT initially ran for undergraduate courses with six engineering departments: Civil Engineering, Electronics Engineering, Electrical Power Engineering, Mechanical Engineering, Chemical Engineering and Architecture. Then MIT was renamed Mandalay Technological University (MTU, 2013).

1.2.3 Transformations in technology education system

As Myanmar government is changing the technology education system from quantity to quality, admittance to the technological universities will be decided on certain higher threshold of matriculation examination marks identified by MOST. The students who get 450 marks or above in matriculation examination will have a chance to attend the Centers of Excellence (COEs) i.e. YTU and MTU. After the successful completion of six academic years, COE students will get the bachelor of engineering degree (B.E). Students with a moderate matriculation examination result of 360 marks or above can go to other technological universities. There is a four years B.Tech (Bachelor of Technician) program which can be extended extra two years towards B.E program providing that they have high grades in B.Tech program. If the students are qualified upon the completion of B.Tech, they will get a chance to attend final two years towards B.E degree. Figure 1.2 illustrates the new technology education system in Myanmar since 2012.

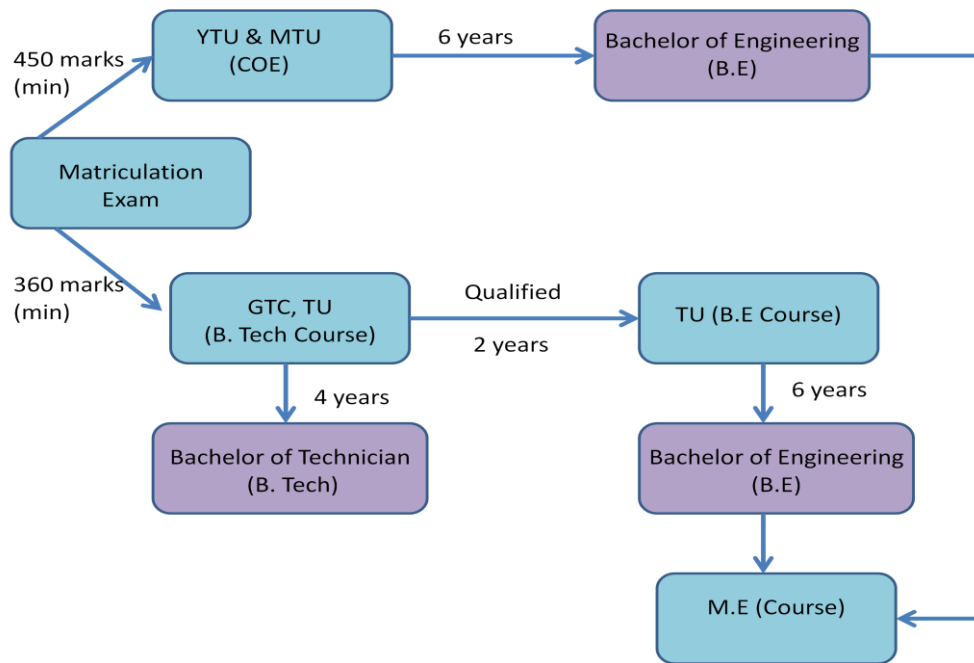


Figure 1.2 - Technology education system (Myat, 2012)

1.3 Implementation of a reform strategy

In current situation, the government is going to reconstruct the higher education system with the reform strategies and policies in Myanmar. Ministry of Science and Technology (MOST) laid down a number of reform policies to develop engineering education in Myanmar. These strategies are:

- “- Making efforts with accelerated momentum to achieve advancement in Science and Engineering of the country;*
- Need to fulfill the financial support, technical aids and necessary equipments, well-qualified and competent teachers in Universities and Colleges;*
- Select some universities to upgrade as Center of Excellence to meet the international standard in engineering education;*
- Changing the academic program in existing Technological Universities and Institutes;*
- Conducting special research projects in collaboration with industries;*

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

- *To strengthen the Industry-Institutions linkages obtaining fully cooperation between two organizations;*
- *Enhancing the decentralization of University Administration and promoting the Status of University as Autonomy” (Myat, 2012).*

1.4 Background of COE Project

In order to achieve one of the reform strategies which is to meet the international standard in engineering education, MOST selected the best technology universities in the country to upgrade as Centers of Excellence (COEs). Ministry of Science and Technology selected Yangon and Mandalay technological universities to upgrade as Centers of Excellence to become the international standard in engineering education. COE project was founded in March, 2012. Yangon Technological University (YTU) for the students who passed matriculation exam from lower Myanmar exam centers and Mandalay Technological University (MTU) for the students who passed from the upper Myanmar exam centers were designed as COEs.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project



Figure 1.3 - Locations of COE in Myanmar

Students who passed matriculation examination with highest scores in Myanmar can apply for the enrollment, and around 500 students of COE will be admitted. Two universities accepted about 250 students, each with above 450 marks in 2012-2013 academic years. COE will start quality scientific and technical training programs, teach through international standards with improved methods and with well-trained teachers, and catch up the standard of universities in ASEAN countries. MOST aims to raise the academic standard of these universities to ASEAN level at the end of 2020 and also has targeting to reach International level at the end of 2030.

1.5 Problem statement

Economic, social and environmental development of a country largely reflects the strategy, management and implementation of human resource development programmes. Human resource development empowers a country to foster the quality of life for the individuals, families, communities, enterprises and societies. Human resources development concept has evolved from entirely focusing on individual capacity to building institutional capacity at the national level, through socio-economic policies and development plan and strategies (DESA, 2014).

Human resources development programmes are extremely important to improve socio-economic situations and development of Myanmar as Human Development Index (HDI) ranking of the country is one of the lowest in the ASEAN region (UNDP, 2014). Technology development is one of the critical aspects for the human resources development in Myanmar for catching up the progress of fellow ASEAN countries as well as promoting the quality of life for their own citizens. However, there are several obstacles to overcome in order to implement higher quality technology education in Myanmar, especially socio-economic situations of the students, quality infrastructure and qualified manpower. In order to find the ways to overcome these barriers, Ministry of Science and Technology (MOST) of Myanmar established the Centers of Excellence (COEs) as part of national human resources development strategy. The purpose of establishing COEs is to obtain international standard of technology and engineering education by fulfilling the requirements for the financial support, technology aids and necessary equipments, well-qualified and competent teachers for the best technology universities in the country.

Despite the fact that MOST has been prepared to deliver the quality technology education through COEs, neither preliminary nor follow-up researches were conducted regarding the area of human resource development and management of COEs. This study intends to fill the research gap by conducting a research within the scope of human resource development particularly concerned with the Human Resource Management model of COEs.

1.6 Objectives

The main objectives of this study are:

1. To explore the requirements for COEs to ensure quality tertiary technology education in Myanmar;
2. To understand students' satisfaction level on the provided education by COEs; and
3. To ensure inclusiveness of all qualified students to have an access to COEs.

Moreover, some of the outstanding students from rural areas who are qualified in matriculation examination may not go to universities in capital city and other cities mainly for reasons such as lack of money and lack of knowledge to contact with donor foundations. Hence, the valuable human resource of the country could be overlooked and wasted.

The goal of this dissertation project is to help to find the ways to augment the chance of young people all over the country to access quality tertiary technology education and at the same time to upgrade students' quality level. This study analyzes the opinion of students based on the results obtained from a questionnaire by empirical analysis and intends to make some recommendations and suggestions to improve human resource management model at COEs, so that students will get most benefits from COE system as well as opportunities for young poor students from rural areas.

1.7 Research questions

The ultimate goal of this study is to create and introduce better HRM models, plans and suggestions for COE system in pursuit of advancing tertiary technology education of Myanmar as well as to achieve the goals of COE project. The results of empirical analysis will be utilized to develop the COE system and to improve the quality of COE students. This study will cover the following research questions:

- Q1. What kind of benefits can the students get by studying at COEs than other technological universities?
- Q2. Can COEs genuinely provide higher quality tertiary technology education in Myanmar?
- Q3. What are the requirements for the students that need to be fulfilled by COEs?

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

The purpose of these questions is to discover the benefits and requirements of the COEs by comparing it to other technological universities in Myanmar, to get advantages from human resource management models and to identify the needs of COEs in order to fulfill the students' main requirements.

1.8 Document structure

This thesis consists of six chapters starting with this introduction that includes education system of Myanmar, implementation of a reform strategy, background of COE project, problem statement, research question and document structure.

Contextualization and literature review will be discussed in Chapter 2. Contextualization concerns with the background context, challenges and needs of higher education in Myanmar. Literature review presents the background literature and concept of COEs, the quality and improvement in higher education, teaching strategies and an example of departmental Human Resource Management.

Chapter 3 will describe the methodology used in this research. This chapter will include four parts which are preparation stage, method choosing stage, data collection and data analysis.

The results from the questionnaire will be presented and analyzed in Chapter 4.

Then the recommendations and suggestions for COEs, design proposal to support financially disadvantaged students and the human resource management plan for MOST will be provided in Chapter 5.

Finally, the last chapter, Chapter 6 will present the conclusions and future work for COEs.

2 Contextualization and Literature Review

Firstly, this chapter presents contextualization, challenges and needs of higher education in Myanmar. Secondly, previous literature related to this study such as COE concept, teaching strategies and human resource management as well as the role of quality and improvement in a higher education will be discussed.

2.1 Higher education context in Myanmar

All universities were closed about 2 years because of students' protest in 1988. As Government faced the difficult situation of universities' clash, the new structure of education system was weak in the 1990s. But, there were still clashes of students in Myanmar and as a result of students' strike in 1996 and 1998, universities were closed another 3 years again. After that, the government reopened the universities and colleges in different regions in 1999 (Burma Watcher, 1989).

Nowadays, Myanmar has opened to the world with the political transition in 2011. It has been triggered to start the changes of higher education sector with the help of international collaboration and the support from development partners under the leading of the government. Being a centralized education system, universities will operate their activities depending on the government policies. The official opening statement that government has already made to improve and upgrade higher education plans provoked already some changes. In the current situation, universities are implementing reform strategies even though differently from other countries allowing autonomy to universities (Salmi, 2013).

2.2 Challenges and needs of higher education in Myanmar

According to the British Council's report of Empowering Higher Education in Myanmar (2013), the challenges and needs depend on the changing face of global higher education for a long term vision for the higher education system. The most important of the challenges is to re-establish the full institutional autonomy in order to give the right and freedom to academic institutions managing themselves and to the academic staff the right to decide how to teach, which academic courses, and how they assess in examinations. Other challenges are being faced

with the opportunities to every level for vocational education as well as to upgrade the teachers' quality. It also mentions the needs for international links with the building of a system which is rooted in internationalization and in welcoming the support from donor agencies and from countries which have more developed education systems.

Professor Dr. Mya Oo, secretary of education development committee of Myanmar stated that there is a challenge to consider changes in the entrance system of the universities because most of the students joined the institutions to learn particular subjects with the pressure of parents and societies. So, human resources are not in the right place as they are not interested in those fields. In addition, another challenge is to overcome the various barriers in changing from a centralized to a decentralized system of the university education. He also mentioned the requirements which are *“insufficiency of qualified teachers, lab equivalent, research apparatus and transportation difficulty and so on”* (Oo, 2013).

The report of the IIE Myanmar Initiative identified that *“the needs of higher education in Myanmar are extensive. The entire system requires nothing less than a complete renovation – from the physical infrastructure to the academic curriculum. Due to the nature of the political environment over the last two-plus decades and its deleterious impact on the education system, universities in Myanmar lack the intellectual vitality and scholarly vibrancy so often associated with Western education institutions and most of their Asian counterparts.”* It expressed that the requirement of higher education system needs to implement more than upgrading buildings, classrooms, and related physical infrastructure (McCord et al., 2013).

2.3 Concept of COEs

“Excellence has become a watchword for goal setting and assessment in science and technology policy” (Hellström, 2011)

Several universities from different countries across the world have been developed with their own center of excellence programs in recent years especially in emerging countries such as India and China. MOST has adopted a similar model to create COEs in Myanmar at the tertiary level in recent year (Aksnes et al., 2012). COEs can be described as *“Organizational*

environments that strive for and succeed in developing high standards of conduct in a field of research, innovation or learning” (Hellström, 2011).

Government of Myanmar laid down a Framework for Economic and Social Reforms (FESR) according to the instruction of President at the end of 2011. A set of implementations are being introduced to improve and develop in the direction of learning for technology universities under the FESR. As the first step of implementation, Centers of Excellence (COEs) have been established to fulfill the needs of quality tertiary engineering education in Myanmar. Before opening the COEs, Ministry of Science and Technology (MOST) organized a COE (Technological University) committee including the retired deputy ministers, retired rectors and current rectors from MOST. Then, the ministry upgraded the infrastructure of the two technological universities that were to be implemented as COEs and prepared the academic program for COEs after studying and examining the curriculum of some international universities (MOST, 2013).

The COE model for the best technology universities in Myanmar expected to be a pivotal tool for concentrating the resources, innovation and social impacts to produce quality engineers and academics in the area of science and technology. It will also be a valuable role in providing the quality academic activities of higher education of Myanmar in general and reconstructing the education system of the country.

2.4 Quality and improvement in higher education

There are several definitions of quality depending on the assigned area and the perception of individuals. The definition of quality can be more suitable and right when it is defined based on the customers’ needs and wants in the situation of their demands (Sallis, 1993). Beaver (1994) considers the students as customers and intends to reach a higher level quality in the assessment of the students’ grade distribution in analogy with the statistical control method. In the product purchasing part, students are more than customers because students have to learn with the contributing factors not only in classroom but also with social and family background.

For higher education, Fincher (1994) also mentions how quality perspectives have evolved over the years by shifting from experience to technique, to style and even to process.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

Harvey and Green (1993) state quality as a 'relative concept' with the stakeholders in higher education. Students, teaching and non-teaching staff, government, employers and its funding organizations are included in the variety of stakeholders of higher education. Burrows & Harvey (1992) say that students, as they are different people, they have different quality concepts in higher education depending on their interesting area.

“To understand quality it is necessary to recognize that it has contradictory meanings that can lead to different assessment methods and different practical outcomes” (Tam, 2001).

According to the research of Sallis (1993), *“the four quality imperatives will reflect the complex environment in which educational institutions operate. They are the drivers and motivating forces that challenge any institution to take a proactive stance on quality.”* Moral high imperative in education is the best possible quality that the education service will deserve for the students, parents and community. The second one, the professional imperative, is closely linked to moral imperative and states that teachers will have the professional duty of improving the quality of education and administrators will ensure the management with the highest possible standards for the institutions. The third one, competition, will require different strategies to improve the quality of their service turning them better than competitors. The last one is the accountability imperative and consists of promoting objective and measurable outcomes of the educational process and providing mechanisms for quality improvement by supporting the total quality management. If one of these imperatives failed, institutions can jeopardize their well-being and survival (Sallis, 1993).

To improve higher education, the majority of the European countries promised to establish a higher education area in order to increment international cooperation and academic exchange, to facilitate mobility for students and graduates of the higher education, to offer abroad access to high-quality higher education and to train students to get good jobs in their future (Biggs and Tang, 2011). So, Myanmar should establish a higher education area in cooperation with Asian countries in order to meet and improve quality of education like European countries did.

2.5 Teaching strategies

2.5.1 Theories of teaching

Fox (1983) states the four basic theories of teaching which are transfer theory, shaping theory, travelling theory and growing theory and he refers to the transfer and shaping theories as simple theories, and travelling theory and growing theory as developed theories from transfer and shaping theories.

Transfer theory “treats the knowledge as a commodity to be transferred from one location to another” and it focuses on the commodity by teacher’s attention before transfer it. The lecture will be classical manifestation in all teaching method of transfer theory in action. The transfer theory illustrates that the lecture notes of teachers become the lecture notes of students without passing the mind of students like operating a photo-copying process.

Secondly, *shaping theory* “treats the teaching as a shaping process or it treats moulding students to a predetermined pattern.” There are many varieties of theories and they include students, or at least student brains, as raw material to be shaped and detailed specification by viewing each subset of these theories. When teachers use their teaching by shaping theories, firstly they make this by showing and demonstrating these qualities and then they set the exercises to solve problems and to manipulate data for the students. The useful distinction between the concepts of training and education could not be found by themselves. Teachers who see their end-products as connections rather than shapes will discover the electrical versions of the shaping theory more attractive. Teaching will make connections in the students’ minds according to this electrical version.

The third one, *travelling theory* “treats a subject as a terrain to be explored with hills to be climbed for better viewpoints with the teacher as the travelling companion or expert guide.” In this analogy, the teacher is a local guide and equipment supplier because he has already been at the hills and the mountains, he can share his experiences and also provide the travelling equipments. Although he knows the most of the views and where they change, he often finds new learning himself because there is always something new to learn and, when one of the students has a different perspective, he may points out something that the teacher has never seen

before. So, he accepts that he will never know everything. Education is a journey of exploration but is not a direct trip from A to B. According to this theory, the process of teaching may help the students on a travel through an unfamiliar way and touch the terrain.

Finally, *the growing theory* “focuses more attention on the learner’s intellectual and emotional development.” The teaching may encourage and help the students to develop and grow their individual capabilities from the growing theory view. For example, like an expert gardener that encourages the growth of the various parts of plants in a productive garden by imaging the teacher as a gardener with the student's mind (Fox, 1983).

	Simple theories	Developed theories
The verb 'teaching' is applied to the academic subject. It is likely to be one within a lot of detailed facts to learn	Transfer theories	Travelling theories
The verb 'teaching' is applied to people. The subjects are related to personal attitudes and skills	Shaping theories	Growing theories

Table 2.1 - The relationships of four basic teaching theories (Fox, 1983)

Kettle and Sellars (1996) also discover the professional development of two student teachers in practical theory of teaching and the interactions to challenge the existing views, and their own views about teaching by analyzing the two student teachers during their practice teaching. These interaction models will encourage students to collaboration with their colleagues when they become teachers; their system of knowledge, attitudes related to teaching will provide them with the ability to their professional development. By using this teaching’s principle of two student teachers, the teachers from all universities will force their professional work and communication with their colleagues.

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

Encourage participation by students	<ul style="list-style-type: none"> - involve whole classroom - get opinions from over whole class - encourage all to answer questions - use motivational techniques - involves student commitment
Respect students	<ul style="list-style-type: none"> - two way deal: you respect students and students should respect you
Use original ideas for lessons	<ul style="list-style-type: none"> - can't use original ideas for everything - use source books- adapt to your class - other teachers as a resource - restricted by resources and time
Compromise with students	<ul style="list-style-type: none"> - what they need to know - their interests - can't compromise everything
Teach students equally	<ul style="list-style-type: none"> - give all students the opportunity to learn - don't be biased
Accommodate for different student needs	<ul style="list-style-type: none"> - may need to use different techniques - worthwhile work for quicker students - peer tutoring - extra motivation for those having difficulties
Be professional	<ul style="list-style-type: none"> - know about students' issues - know how to handle students in an appropriate way
Have relaxed relationships with students	<ul style="list-style-type: none"> - a balance of sitting and movement - being able to talk with students - project image that encourages student talk - teacher must have some control - can't be relaxed all the time
Liked by students	<ul style="list-style-type: none"> - basis of a good happy relationship within the classroom
Fun (variety of) activities	<ul style="list-style-type: none"> - don't have a rigid timetable structure
Prepare for interruptions	<ul style="list-style-type: none"> - be flexible - don't get annoyed at interruptions

Table 2.2 - Annie's key teaching principles (Kettle and Sellars, 1996)

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

Student	Teacher
Critical thinking	Resource
Investigation	Co-ordinator
Active	Interacting
High self-esteem	Warm
Resource-experiences	Approachable
Self-discovery	Provider of experiences
Self-discipline	

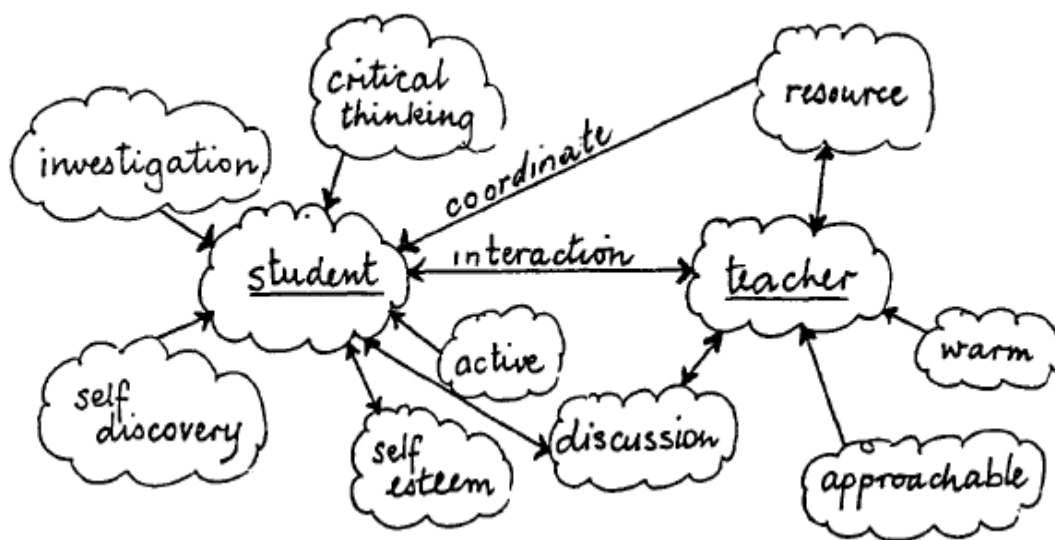


Table 2.3 - Diagrammatic representation of Janice's practical theory as constructed by Janice in early 1992 (Kettle and Sellars, 1996)

2.5.2 Teaching methods

According to Biggs and Tang (2011), “good teaching is getting most students to use the level of cognitive processes needed to achieve the intended that the more academic students use spontaneously”.

They explained the good teaching with an example of two students attending a lecture. Student A is interested in studies and wants to do well with clear academic or career plans. Student A went about it in an academic way when he or she learns and prepared the relevant knowledge background, possibly some questions that want to answer before student A comes to the lectures. Student B wants only to pass the examination and to obtain the meal ticket. So student B comes to the lectures with the less relevant knowledge background and with no or few questions. As a result, student B does not see a keystone like student A although they hear the same words what the lecturer say and their lecture notes will be recorded with a different way as well as the exam time.

Authors mention that today's classes have the students in student B with higher proportions; so, teachers face the challenge of teaching for students like student B and that he will learn more in the way behaved by students A. Figure 4 shows the gap between learning achievements by student A and student B. Good teaching methods lead the students to make questions, to guess the possible answers to a question; so, student B will try to use higher order cognitive activities and it has the narrowed gap between the ways they went about learning and between their respective performance (Biggs and Tang, 2011).

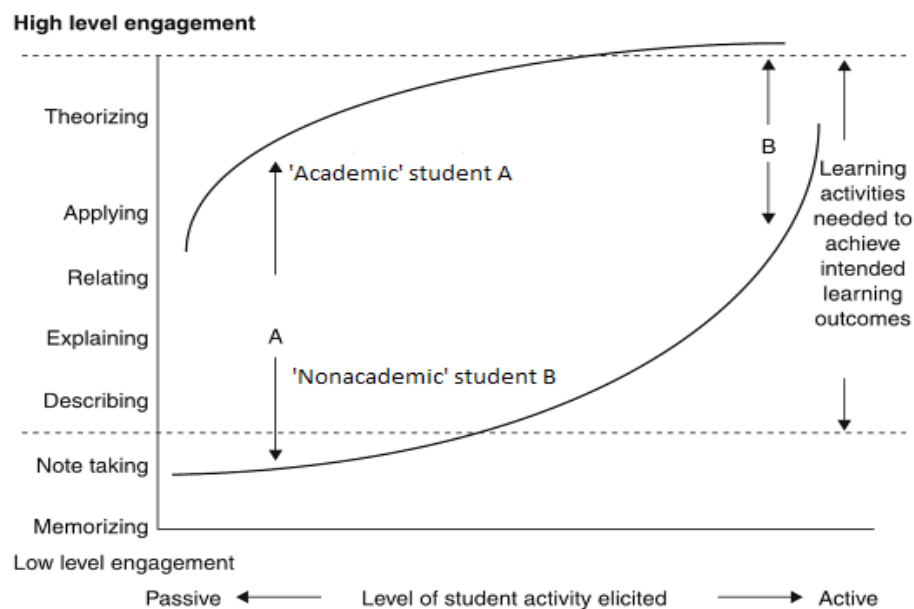


Figure 2.1 - The model for student orientation, teaching method and level of engagement (Biggs and Tang, 2011)

Joseph Blase and Jo Blase (2000) found the effective principal-teacher interaction about instruction and processes. It is only teacher's perspective on how principal will promote on teaching and learning in the classroom according to the open-ended questionnaire responded by 800 American teachers. It showed two themes which are talking with teachers to promote reflection and promoting professional growth.

Talking with teachers to promote reflection includes five primary talking strategies, according to the same authors.

- “(1) *making suggestions*
- (2) *giving feedback*
- (3) *modeling*
- (4) *using inquiry and soliciting advice and opinions and*
- (5) *giving praise.*”

Promoting professional growth includes six strategies:

- “(1) *emphasizing the study of teaching and learning*
- (2) *supporting collaboration efforts among educators*
- (3) *developing coaching relationships among educators*
- (4) *encouraging and supporting redesign of programs*
- (5) *applying the principles of adult learning, growth, and development to all phases of staff development and*
- (6) *implementing action research to inform instructional decision making.*”

Gardner (1983) proposed Multiple Intelligence Theory for examining and assessing the mental capabilities of individuals. Firstly, Gardner mentioned seven intelligences which are Linguistic Intelligence, Logical-Mathematical Intelligence, Spatial Intelligence, Bodily-Kinesthetic Intelligence, Musical Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence and, then, he added the last two: Naturalistic Intelligence and Existential Intelligence (Gardner, 2004). According to Al Sulim (2012), Multiple Intelligence Theory could help to develop a list of teaching strategies and provide them. It can get benefits for the faculty in teaching students as well as in promoting the academic performance for the faculty members.

Multiple Intelligence Theory could identify teaching strategies to use in teaching with curriculum planning by analyzing the MA female student's intelligence (Al Sulim, 2012).

With traditional approach, class time of the most universities from Myanmar generally spend on the lectures provided by teachers but no student discussions. It obviously is needed to change to internationally practiced student-centered approach that shifting focus from the teachers to learners. Teaching methods and strategies are also very important to assist students to enhance their cognitive performance especially with the help of advance teaching materials. *“Reforms of the curriculum and pedagogical practices”* should also be introduced *“with the purpose of better preparing the young women and men of Myanmar”* (Galván, 2013).

2.6 Example of departmental Human Resource Management

An important key to success, not only in the education field but also in other fields, is to ensure Human Resource Management for developing the skills, performance, commitment and knowledge of teachers, students and office staff. HRM that is how we upgrade the assets of people of future considered in all parts of this study.

According to the *Guide to Human Resource Management* published by the Hong Kong Civil Service (Civil Service Branch, 1995), Human resource management is a job to implement within the government's framework for managing and helping people better. To support the new base on the developing and rising situations, this study reviews the needs to change in the HRM implementation. The right direction for HRM is revealed by concentrating on its strategic role, policies, setting guidelines and rules, and advising branches and departments on implementation, focusing more on the management of people and developing their own HRM plans. The value of the human resource management will be a cultural view of every organization. Identifying and combining the added-value of each level of each department must be done in order to achieve the whole organization. Every staff from the different levels should understand and perform very well their tasks in their special area of work. The strategy of each department will be supported by the staff contributing to the efforts of the organization.

“Human Resource Management is a planned approach to managing people effectively for performance. It aims to establish a more open, flexible and caring management style so that staff will be motivated, developed and managed in a way that they can and will give of their best to support departments' missions” according to the Guide to Human Resource Management published by the Hong Kong Civil Service (Civil Service Branch, 1995).

We have no doubt that Departmental Human Resource plans will be provided for the staff, teachers, managers and the people who is working for any organization clearly as a guideline. These plans understand what to do in order to improve the quality of people. Then they can move forward by adding their workforces together with different skills to reach the goal of organization.

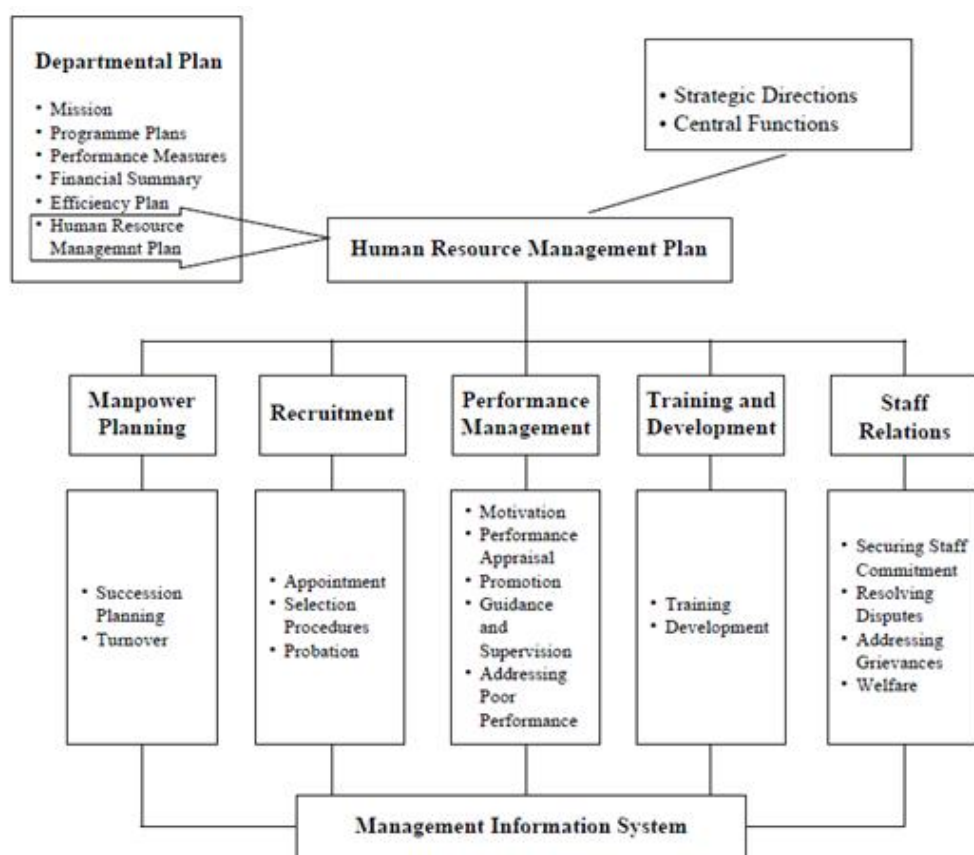


Figure 2.2 - Reference model for departmental human resource management plan (Civil Service Branch, 1995)

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

By connecting the overall policies, strategies and the mission and objectives of the department to these HRM plans, the HRM activities are specified. Manpower planning can help to adjust the requirement of manpower depending on the period of the project. It must include two parts: succession planning and turnover. Turnover means retirement, resignation and redundancy. To minimize the impact of turnover, succession plan will help to ensure the training requirement for suitable candidates. Recruitment process consists of the three key components which are: deciding on terms of appointment (e.g. permanent, part-time), selection of candidates and probation. Performance management will be an important link to provide human resource functions and to improve individual and collective performance (Civil Service Branch, 1995).

Training and development will ensure the development of the activities performed by employers, employee's skill, knowledge and performance. Development of employers and organizations will be upgraded through the different types of training on the different interesting areas of work, as training is the process of learning knowledge, new technologies and skills required for a particular job. So, training is essential for teachers when government has to prepare a plan for new courses and for employers, when they think about what to maintain and to improve in job performance. Moreover, training will be an important part to implement human resource development plans and to avoid delays in their execution namely with the help of the advanced technologies. Both employees and employers need to learn continuously updated technologies and methods to reach a best level of competence for their organization as well as teachers and students. The people who have already done training will be valuable assets for organization and they will be getting more feeling of confidence in themselves at the work area (Civil Service Branch, 1995).

Concerning staff relations issues, HRM will give positive effects in the communication between management and staff. Then, staff commitment will provide a perfect service's quality depending on the individual cases of handling staff. The way to discuss between both sides will handle and resolve the disputes between management and staff. HR senior officers will assist to resolve the complaints or grievance according to the government's system deal with the staff. Making the staff welfare fund and recreational facilities, it will also be a crucial way to maintain the valuable staff (Civil Service Branch, 1995).

3 Research Methodology

This thesis is mainly focused on the descriptive approach research model that it is suitable for this kind of study because this study is used to get information concerning the current situation for requirements of COE at Yangon Technological University and Mandalay Technological University under the Ministry of Science and Technology in Myanmar. But a mixed research method was chosen for this research. There are four stages of the research process for this study. They are preparation stage, method choosing stage, data collection and data analysis.

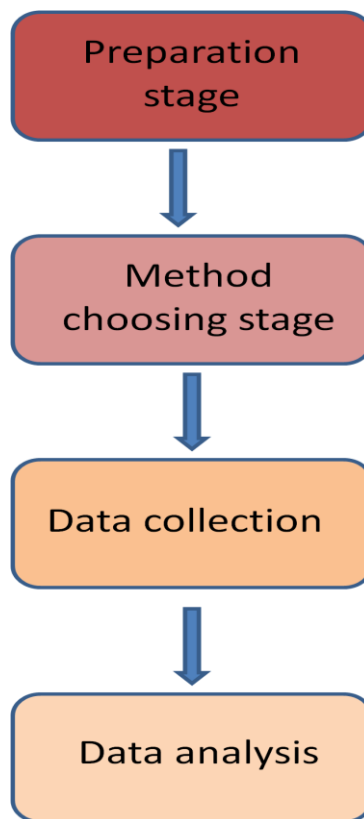


Figure 3.1 - Representation of the steps of the Methodology

3.1 Preparation stage

In this study data were mainly collected through a questionnaire to identify the needs of higher education and to build the effective design model for COE. The quantitative research method is better for the study regarding attitudes and perceptions of respondents. The data collected can be generalized based on sample respondents. Moreover, it is good for the quantitative method to collect reliable and valid data when the researcher herself does not participate in the data collection activity. Specifically for the quantitative method, the structured interview was chosen with a survey questionnaire to measure the service quality of COE from the students' perception and to identify the needs of COE.

However, the structured interview has been supported by rich information of the problem. Thus, a qualitative method was applied along with. The semi-structured interview was chosen in this research. After developing the semi-structured question was developed.

First of all, based on the requirements of the data concerning attitudes and perception of the COE, the author searched the literatures and questionnaires about it online, then developed a questionnaire for this study with 20 questions. It consists of three parts. The first part is concerned with the education quality (academic facilities, learning resources, teaching quality) and the second part is regarding the benefits of COE. The final part deals with the requirements of students and other general questions in this questionnaire; although most of the questions are closed ones some are open to get more valuable responses from the interviewees. It was developed in English and then translated into Myanmar language. After developing the questionnaires, a pilot test was done with some Myanmar students who are studying in Europe countries and with some students who are attending these COE via email. It was modified to get the final version of the questionnaire.

The semi-structure questions were very similar to the questionnaires to trace the gap due to a rise of weakness in the survey and to obtain rich information about the problem. One of the objectives was to make triangulation.

3.2 Method choosing stage

Before the actual start of the data collection, a sample size and a sampling method were considered for this study. Initially, the sample size was considered. The list of the students was also requested from the university administration offices. As mentioned about the COEs have been opened since last year. There are 250 students admitted to the COE each year; so, there are a total of 500 students at each COE. There are 1,000 students of the COEs at MOST in Myanmar. In order to ensure validity and reliability, the sample size was considered to be 10% of the total students. So, the sample size was 100 respondents in this research.

Regarding a sampling method, a multi-level sampling method was applied. At the first level of the sampling method, the author tried to get 50% of all the respondents at each COE purposively. After doing the sampling frame, a sample is randomly selected at each COE and the sample lists for each COE were made.

3.3 Data collection

The permissions for conducting this research at the COEs were requested with emails to the rectors and other administrative officers at YTU and MTU. This questionnaire was sent to those who helped to collect data at the COEs via email and the author explained them all the questions in the questionnaires extensively through Skype.

Actual data collections were done by these teachers in Myanmar. There are a total of 5 data collectors. With participating and helping of the COE educators who were responsible for the first year and second year students, these hundred students were requested to participate in this research at the universities. These students were invited into the offices and were distributed during the free classroom periods in YTU and MTU. Each student finished the questionnaires on the day of distribution, spending about 25 minutes to complete it.

The following table (3.1) shows number of students who had been requested based on the sampling frame and the number of the respondents and its response rate. The response rate was 100 % at each COE. So, the response rate for the whole survey was 100%.

Response rates

Name of universities	Number of requested students	Number of participated students	Response rate
YTU	50	50	100%
MTU	50	50	100%

Table 3.1 - Response rates of the questionnaire

After that, we collected back the completed questionnaires. These data collectors are faculty members of the COEs. The data collection started on the second week of June and ended on the second week of July. It took around one month. One of the data collectors always checked the answered daily and, if necessary, they invited and distributed the respondent again. Finally, all the questionnaires filled were scanned by those data collectors and then sent to the author via internet.

As for semi-structured interviews, they were conducted via Skype. The respondents were a total of 3 teachers of the COEs and TU, and 4 students who are attending the normal programmes at these universities. They were chosen in a convenient way. The interviews were done during the survey data collection and after analyzing the survey. Each interview took around 30 minutes.

3.4 Data analysis

While collecting the data in Myanmar, the database format was developed with Microsoft office excel software. As soon as the scanned file of the questionnaires filled reached in my hand, all the questionnaires filled were checked and edited again before entering the data into the database format. The analysis was done by the author herself with this software. The qualitative data were analyzed manually. After comparing the results from both universities, conclusions can be made and suggestions can be provided in order to improve tertiary engineering education and to create more opportunities for the students from financially disadvantaged families from the rural areas in Myanmar.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

In this research, research ethics was highly paid respect at each stage of the process. The questionnaire was carefully developed to avoid harmfulness to the respondents because they were current students at the COEs. During the data collection, each respondent was asked in a safe place. They were explained about the research in brief and how confidentiality was respected by the authors and the data collectors. Every student was asked with his/her informed consent. The author and the data collectors paid respect to their rights and confidentiality.

4 Survey Results

This chapter will present the results of analysis on the collected data. As the main objective of the research is to obtain more positive impacts after identifying the needs of COEs, this study will analyze the collected data of two universities separately (50 students at each university, which is 10% of total population at each university) in order to meet the needs for each university. For the quantitative part, the results will mention only the description of participants' responses as taking the data with their permission. So, the answers for some questions were missing and descriptive statistics (percentages) for measured data are presented. For the qualitative part, the results will include the opinions from participants who were interviewed through Skype to complete the research questions.

4.1 Access to high-quality education, academic facilities and learning resources in COE

First of all, the students were asked about the quality of education as well as academic facilities and learning resources at COEs. The statements mentioned in the questionnaires are as follows:

'Q1. You can access high-quality education by attending COE.' And

Q'2. You have access to academic facilities and learning resources in COE.'

The following figure 4.1 provides the information about the accessing of high-quality education by attending the COE (question 1) and the accessing to academic facilities and learning resources in COE (question 2). Source: Author's calculation

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

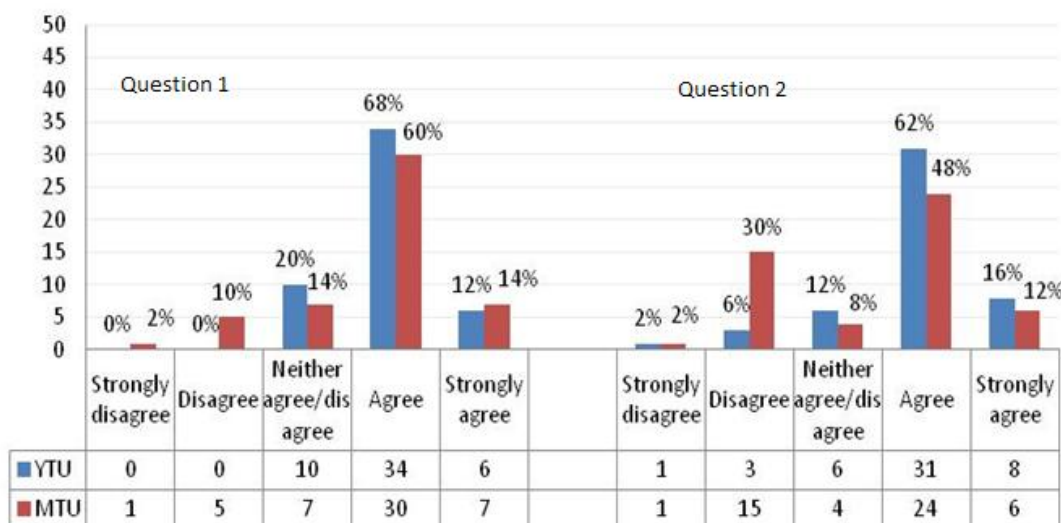


Figure- 4.1 The column chart results of YTU and MTU for question 1 and 2

According to the figure, at YTU, 40 (80%) students said that they had high-quality education. Other 10 (20%) of students did not decide exactly, choosing the response “Neither agree/disagree”. Nobody said that they could not access high-quality education. At MTU, 37 (74%) students said that they were able to access high-quality education, 7 (14%) of students chose the middle response and 6 (12%) students said that they could not access high-quality education.

As regards for the question 2, in the case of YTU, 39 (78%) students said that they received academic learning facilities and learning resources; 6 (12%) of students selected the middle answer; and other 4 (8%) said that they could not access academic learning facilities and learning resources. At MTU, 30 (60%) students said that they could access academic learning facilities and learning resources, 4 (8%) students mentioned ‘neither agree nor disagree’ and 16 (32%) of students said that they could not access academic learning facilities and learning resources.

When comparing the results of each university, the students of the YTU chose the responses agree and strongly agree (80% for question 1 and 78% for question 2). Thus, the students from YTU feel that they have satisfied in accessing high-quality education more than the students from MTU. It can be concluded that the students from YTU have got more learning opportunities than the students from MTU.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

According to the findings for question 2, the students from YTU have mentioned 18% more than the students from MTU in accessing academic facilities and learning resources. It may be concluded that academic facilities and learning resources are not equally supported in both universities. It is needed to fulfill for MTU. Students will be satisfied and believe that they have accessed quality higher education but both universities still have some students who are not satisfied in accessing academic facilities and learning resources.

To get insides of these issues, qualitative study examined the suitable answers. Some of students said that they could not guess it is really access high-quality education because COEs have opened only two years ago but they also said that opening of COEs will be afforded dramatically to students to meet quality higher education. And they also said that universities' services still need to provide them more. For example, the universities should support print and photocopier machines at the cheapest price, like international universities.

4.2 Condition of library system

Then, they were asked about condition of the libraries. The questions used were as follow:

'Q3. How often do you study in library?'

'Q4. You are satisfied with the bibliographic resources provided by the library.' and

'Q5. The Library system is up-to-date in COE.'

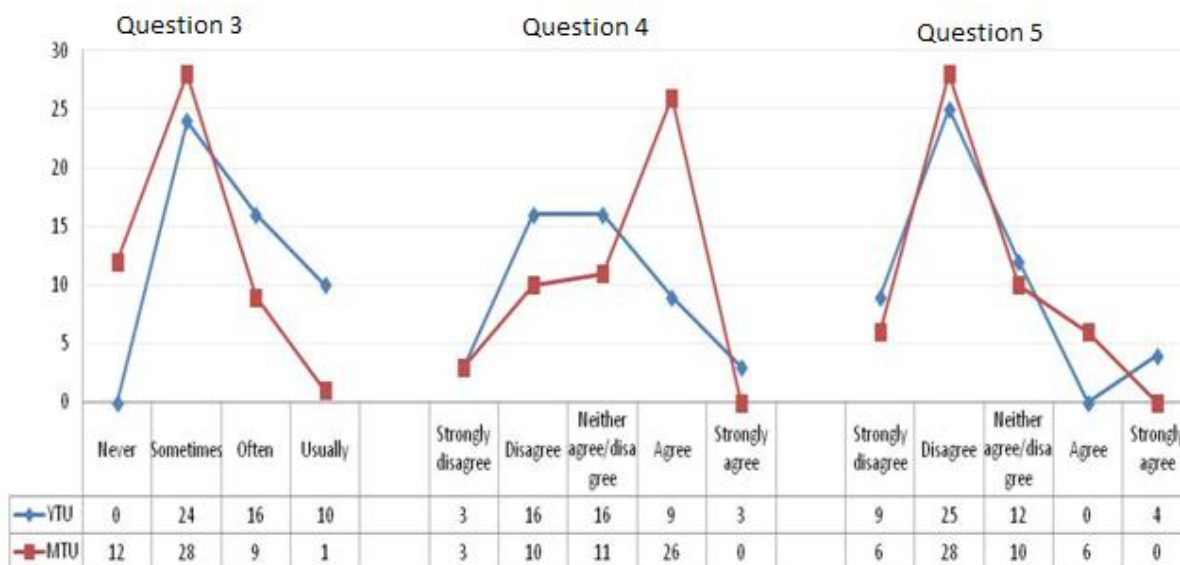


Figure – 4.2 Line chart results of COEs for questions 3, 4 and 5

In Figure 4.2, the answer of the question 3 mentions about the student's study time in library from YTU and MTU. The result of the responses of the students from YTU was: 0 (0%) for 'never', 24 (48%) for 'sometimes', 16 (32%) for 'often' and 10 (20 %) for 'usually'. As well, the students from MTU answered: 12 (24%) the response for 'Never', 28 (56%) for 'sometimes', 9 (18 %) for 'often' and 1(2%) for 'usually'. Thus, the majority of the students sometimes studies in the library. A small number of students usually studies in library.

Figure 4.2 for question 4 mentions the satisfaction of students with the bibliographic resources provided by the library. For the case of YTU, 12 (24%) of students were satisfied with the bibliographic resources provided by the library. 16 (32%) of students did not decide whether they were satisfied or not. 19 (38%) of students are not satisfied with it. For the case of MTU, 26 (52%) of students were satisfied with the bibliographic resources provided by the library. 11 (22%) of students selected the answer (neither agree/disagree). 13 (26%) of students were not satisfied with the bibliographic resources provided by the library. Some students (a total of 24%) were satisfied with the bibliographic resources at YTU. But, 38% (YTU) and 26% (MTU) of students were not satisfied with the bibliographic resources provided by the library. The percentage of those who were not satisfied with these resources at YTU was significantly high.

The result of question 5 in the Fig 4.2 mentions about the student's opinion on the up-to-date library system. At YTU, 4 (8%) said that the library system was up-to-date; 12 (24%) said replied the answer (neither agree/disagree); and 34 (68 %) said that this was not up-to-date. Among them, 9 (18%) of students strongly disagreed that the library system was up-to-date. In MTU, 6 (12%) of students said that it was up-to-date; 10 (20%) could not answer either up-dated or out of date; and 34 (68 %) of students said that this was not up-to-date. Thus, most of students said that the library system was not up-to-date. That the library systems were not up-dated will be the reason why students will not go to study in library. Moreover, MTU can provide the bibliographic resources more than YTU does according to the question 4's results but 24% of students from MTU never go to study in library. It may be seen as a weakness. So, responsible people need to motivate students and both universities should support completely bibliographic resources. According to the qualitative study result, students faced difficulties in conducting research work because of the weakness of the bibliographic resources and library system. They suggested that the libraries should be transformed into an e-library system. Moreover, they should be connected with other international universities libraries in matching with the COE's properties.

4.3 Results for the condition of study rooms

The students were asked about condition of study rooms. The question was as follow:

'Q6. Study rooms in COE allow you more concentration in study.'

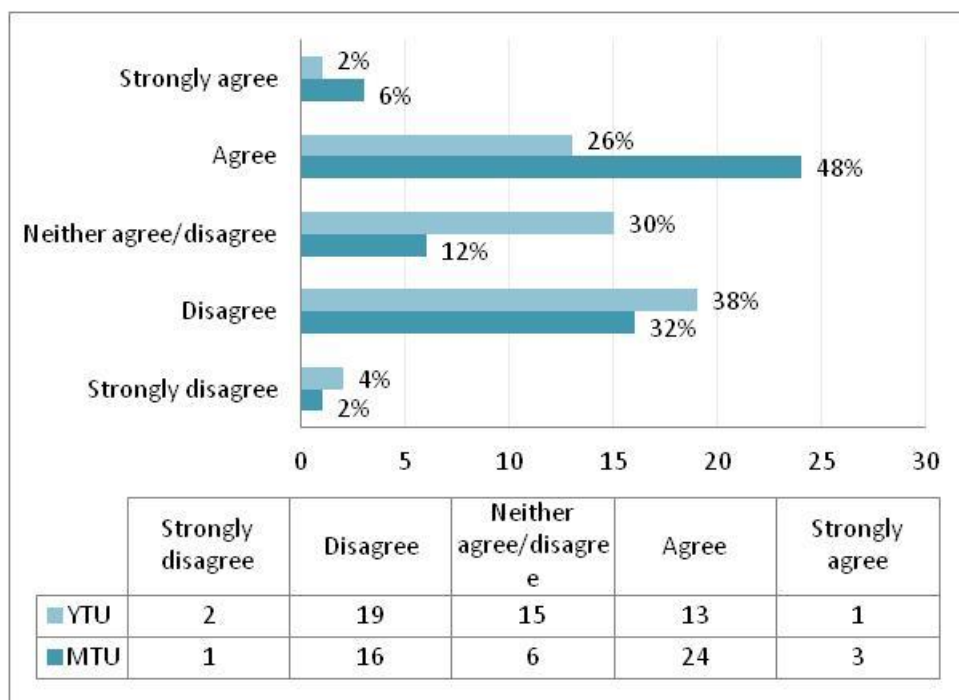


Figure 4.3- Bar chart results of COEs for question 6

Figure 4.3 reflects about the study rooms in COEs in order to concentrate in study of students. The students from YTU selected 42% (disagree) response; 30% students, (Neither agree/ disagree); and 28% students, (agree). The students from MTU chose 34% (disagree); 12% students, (Neither agree/disagree); and 54% students, (agree). Based on the interviews, most of students from YTU said that it was not good to study in the study rooms because they could not concentrate on study in it; so, they went to library in order to study even though bibliographic resources were not provided completely. For MTU, most of the students studied at the study rooms as they said they were able to concentrate on study.

4.4 Results for internet access

The next topic was about internet access. The statement in the questionnaire was:

‘Q7. You can access the internet from university very well.’

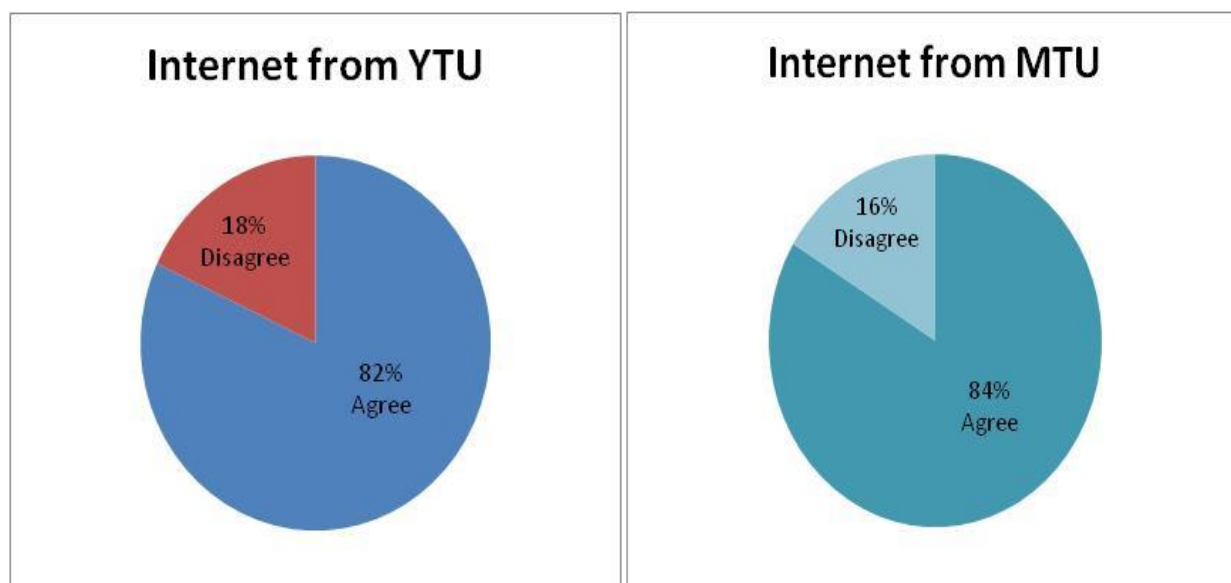


Fig 4.4- Results for internet access from YTU, Fig 4.5 Results for internet access from MTU

Figure 4.4 gives information about the opinion of the students on the internet access at YTU. In this case, 82% of students said that they had access to internet in good conditions whereas 18% of students said that the access was not so good. Similarly, figure 4.5 gives the information about the opinion of the students on the internet access at MTU. 84% of students said that they did it very well and 16% of the students could not access it very well.

By analyzing the results, apparently both universities give similar good conditions in accessing internet for students. However, when going to insides for this problem, the students answered that both universities could not provide the internet within the whole campus area. Moreover, the internet speed was too slow and sometimes internet was automatically disconnected. Besides, the universities have not provided internet facility at students' accommodations. Since internet is essential to study updated lessons and recent papers for students, this is not a good sign about the quality of this facility.

4.5 Differences between COEs and other technological universities

The differences between COEs and other universities in terms of quality education and others will be explained in this part. The students are asked using the following statement and question.

‘Q8. COE can provide higher quality education than other technological universities.’ and

‘Q9. What are the differences between COE and other technological universities?’

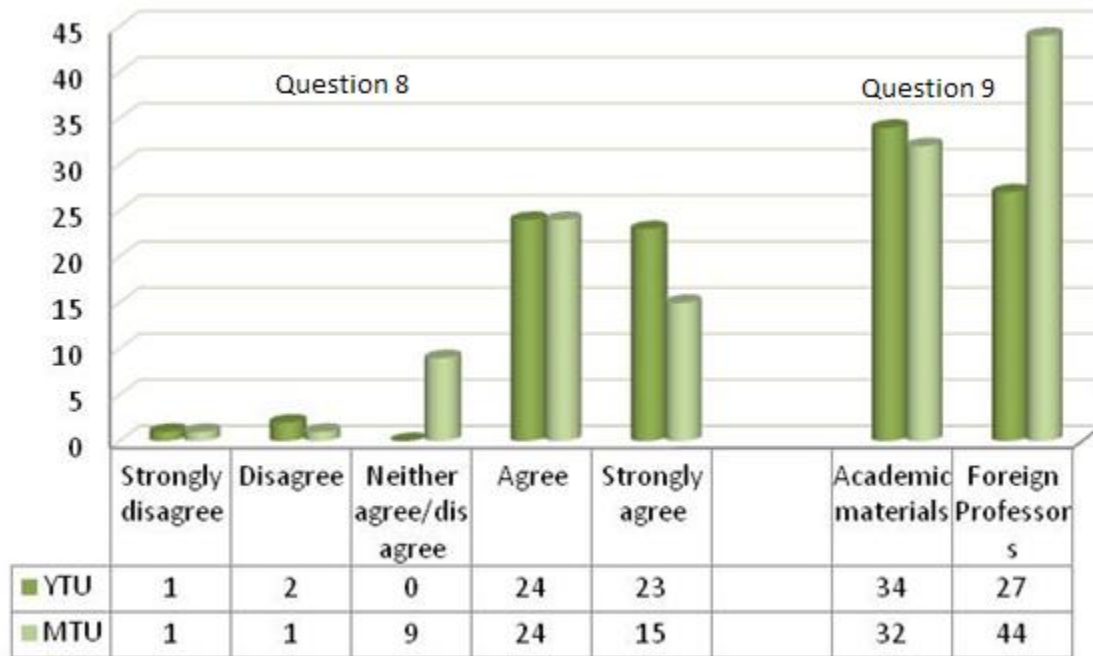


Figure- 4.6 Column chart results for question 8 and 9

Regarding the providing of high quality education by COE for question 8 in figure 4.6, the majority of students (94%) from YTU believed that COE could provide higher quality education than other technological universities whereas only 6% of students thought that COE could not provide the higher quality education. In the case of MTU, 78% of students said that COE could provide the higher quality education; 18% students chose the response ‘neither agree/disagree’; and the rest 4% refused to say that the quality education was higher.

Question 9 of Figure 4.6 shows the differences between COE and other technological universities. Students could choose more than one response in this question. At YTU, 68% of the students mentioned the differences about the sufficiency of academic materials to students at COE. 54% of the students expressed that they have got more chance to learn with guest professors from foreign countries than other technological universities. Similarly at MTU, 64% of the students said that academic materials could support students and 88% of the students got

more chance to learn with guest professors from foreign countries than other technological universities.

Since the above answers were the perception of the COE-students it may be concluded that most students from both universities consider that COE had higher quality education. The reason why the COE had better quality education may be the result of reform strategies, which were developed by studying weaknesses and strengths of other technological universities and taking out weaknesses. Another reason may be that according to interview results from the students who completed Master degree from YTU, they felt that COE could provide higher quality education than other technological universities because of the teaching methods of COEs. These teaching syllabus and methods were developed, based on the evaluation results of the old students and study reports along with practical workshops and laboratories. Moreover, students got opportunities to visit field trips of nearby construction sites, plants, factories and industrial zones on their holidays. So, they had opportunities to learn the lectures in the class at universities; meanwhile, they could study practical fieldwork outside universities. The next important point was that the faculty members who got the degrees from international universities have been assigned at the COEs. What is more, guest professors have been invited to give lectures to the students of the COEs. The students could get international standard education, although they have not attended foreign universities. By looking to these facts, one can conclude that the COEs are quite different from other technological universities.

4.6 Benefits of COE

The questionnaire continues about benefits of COEs. The questions are as follows:

‘Q10. What benefits can you get by attending COE?’ and

‘Q11. By attending COE, there is a better chance to study in foreign universities as mobility students.’

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

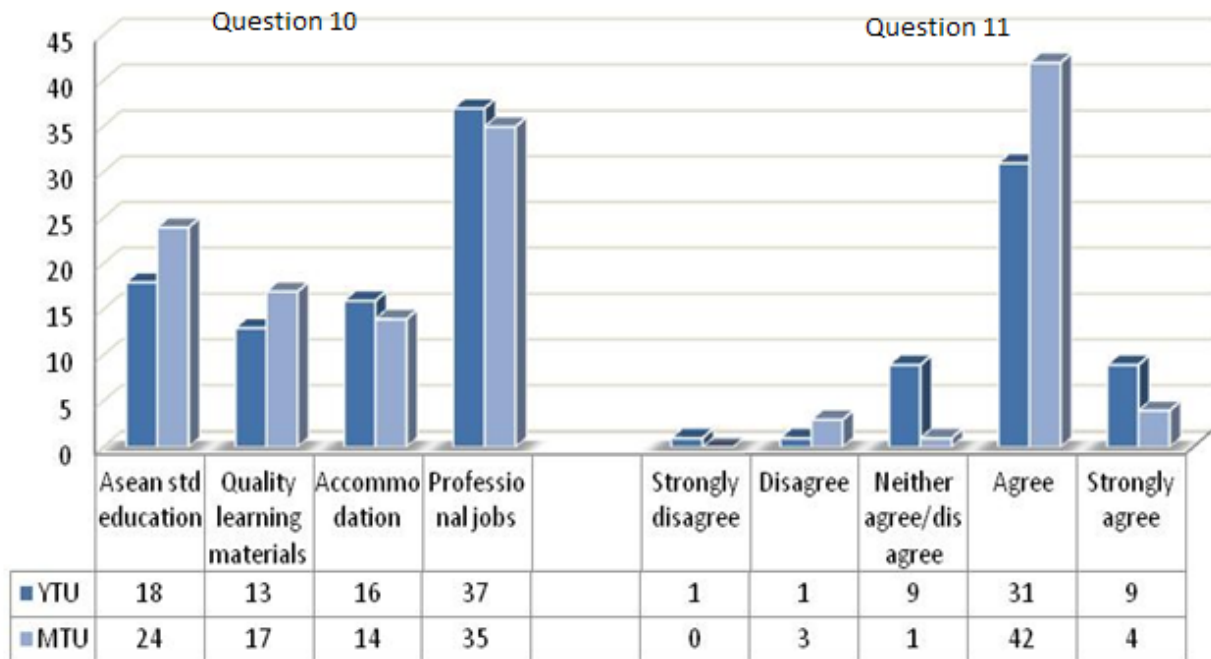


Figure 4.7 Column chart results for questions 10 and 11

Concerning benefits of the students by attending COEs, the students had to choose multiple from four responses: ASEAN standard education, quality learning materials, accommodation and professional jobs as shown in figure 4.7 for question 10. The answers of students from YTU were 36% for ASEAN standard education; 26% for high quality learning materials; 32% for accommodation and 74% for better professional careers in the future. And the result of students from MTU were 48% for ASEAN standard education, 34% for high quality learning materials, 14% for accommodation and 70% for better professional careers in the future. Most of the students at both COE thought that they would have better professional jobs than students from other technological universities, being followed by the ASEAN standard education response whereas quality learning materials and accommodation were least benefited.

Question 11 in figure 4.7 concerns the chances to go and study at foreign universities as mobility students. At YTU, 80% of students said that there was a chance to study abroad; 18% chose the response of neither agree/disagree and 4% of students had negative attitude towards the chance to study abroad. Likewise, 92% of the students from MTU gave positive opinions whereas 6% gave negative answers. The rest of the group (2%) did not respond neither positive

nor negatively. Overall, the majority of the students had positive attitude towards exchange mobility.

It can be concluded that the benefits for a student attending at COEs are better careers in professional life and participation in exchange mobility. Some students from both universities said that their learning standard was at ASEAN level. The overall quality of education has been catching up the ASEAN level although MOST targeted the level of education of COEs to reach ASEAN standard in 2020. Regarding quality learning materials, they still need to reach the satisfaction of the students. In the case of accommodation, the response was low because it concerns only those students who do not live in city's area. But, most of the students want to live at student houses of the universities because they are far away from the city center and it is difficult to reach them as it takes much time due to traffic jam during the office hours. That is the reason for, frequently, students being late, and not reaching the classes in time.

4.7 Interesting in studied majors

The questionnaire also collected the data about students' interest in study specialization.

'Q12. The major point is that your studies match with your interests.'

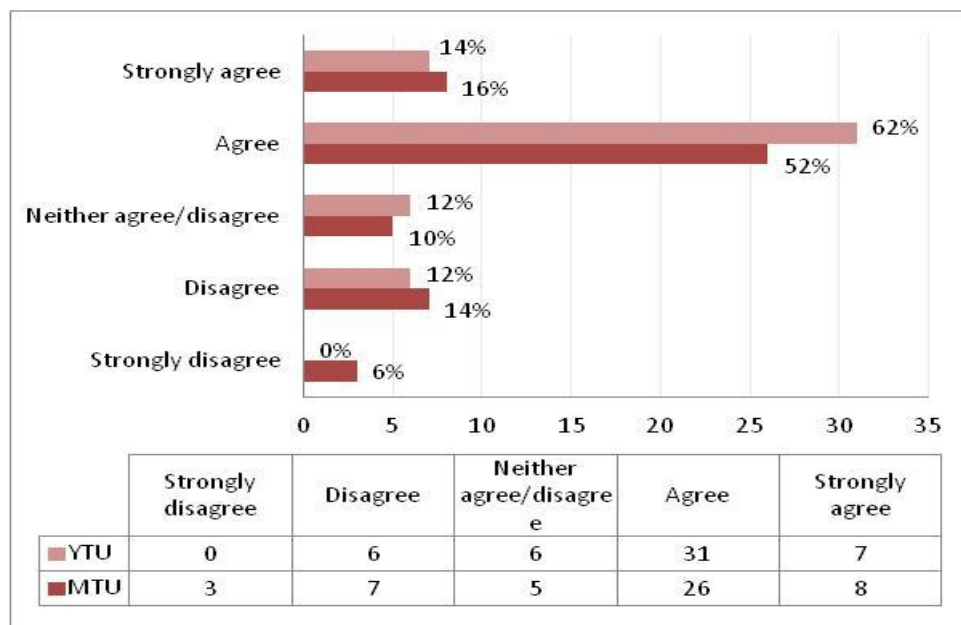


Figure 4.8- Bar chart results for question 12

Good satisfaction levels of students about their courses are one of the important parts of human resource management. If they are not interested on their studies, this is wrong from a human resource management perspective. In our country, decisions of a student to choose a university are influenced by his/her parents and relatives. Sometimes, a student is forced to go to a university or course even if they do not correspond to his own interest. If the student's own interest is different from his/her study major, this may also have negative impacts on the COEs. So, this was analyzed in order to find out its real degree of expression. The Figure 4.8 shows the satisfaction level of the students in their majors. In this case for YTU, 38 (76%) students agreed with this statement; 6 (12%) students chose 'neither agree nor disagree'; and 6 (12%) students disagreed with the statement. And at MTU 34 (68%) students agreed with the statement, 5 (10%) students chose 'neither agree/disagree' response and another 3 (6%) students disagreed with the statement. In this analysis, the interests of more than two-thirds of the students at both the COEs in their study majors were consistent with their selected specialization.

4.8 Perception on qualified students entrance

The next sub-topic was about entrance of qualified students into COEs.

'Q13. Do you think all qualified students can afford to attend COE?'

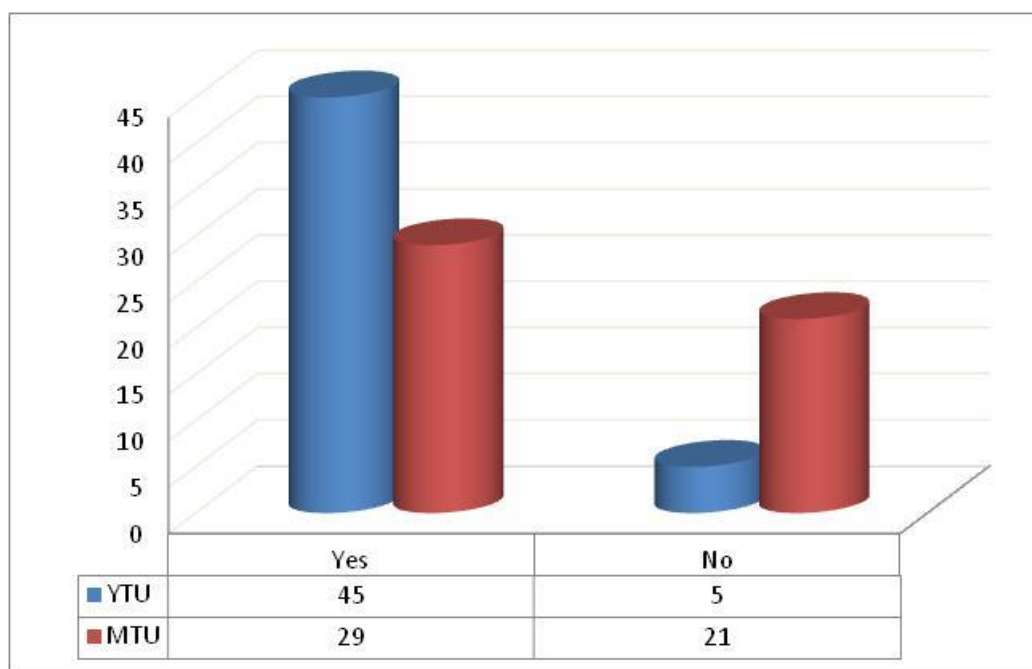


Figure 4.9- Column chart results for question 13

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

The question 13 in figure 4.9 presents information about the perception of the current students at COEs towards entrance of qualified students. 45 (90%) students at YTU replied ‘yes’ whereas the rest (10%) said ‘no’. At MTU, 29 (58%) students responded ‘yes’ whereas the rest (42%) said ‘no’. In total, although there were about 75% who thought that all qualified students can afford to attend the COEs, it is found that there were a quarter of the students that did not think like this. Those who replied ‘no’ were asked about the reasons for this; they answered: lack of money, lack of encouragement and lack of knowledge or others. Lack of money means that students are academically qualified but don’t have any support to pursue the degrees from COE, which requires more costs. Lack of encouragement means that although students are qualified to attend COE, they are not encouraged to attend COE; instead, they are encouraged to study part-time in order to earn money for their families or other purposes. Some students don’t know about COEs and how COE can benefit a student. So, these responses were used to know more about the reasons. According to the results, around 55% of those students from both COEs who said ‘no’ thought that the main reason was lack of financial support. Around 70% of those students replied that the reasons were lack of encouragement and lack of knowledge.

Among the three reasons, the financial problem has been considered the most difficult one. So, the financial support for studying at COE was included in the questionnaire.

4.9 Supporting for students

The question about how the students receive financial support for their study was used.

‘Q14. What types of support are you having to attend the COE?’

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

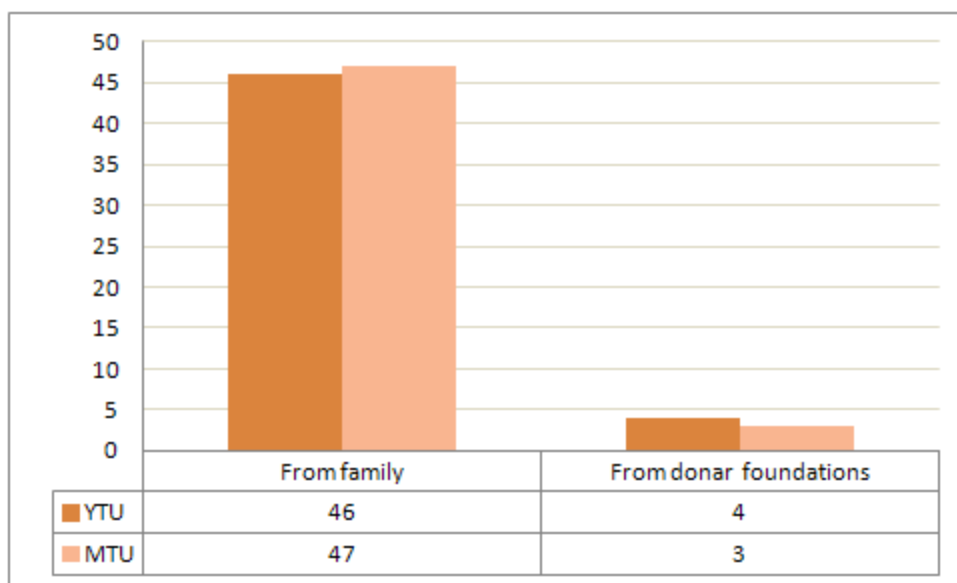


Figure 4.10- Column chart results for question 14

Figure 4.10 illustrates financial support for students. 46 (92%) students from YTU said that they are attending the COE with the support of their families and 4 (8%) said that they are attending COE with the help of donor foundations, which is a private organization founded by a group of rich persons or individual rich persons to give full or partial scholarship. The students (94%) from MTU said they are supported by their families while the rest is supported by foundations. Generally, the majority of the students are attending COE with the families' support and we also can see that a few students from financially disadvantaged families could attend to COE with the help of donor foundations.

4.10 Place of students

Students were asked about the place where they came from to know whether a student from remote and border areas have opportunity to attend the COEs. The question is as follow:

'Q15. Where did you come from to study in COE?'

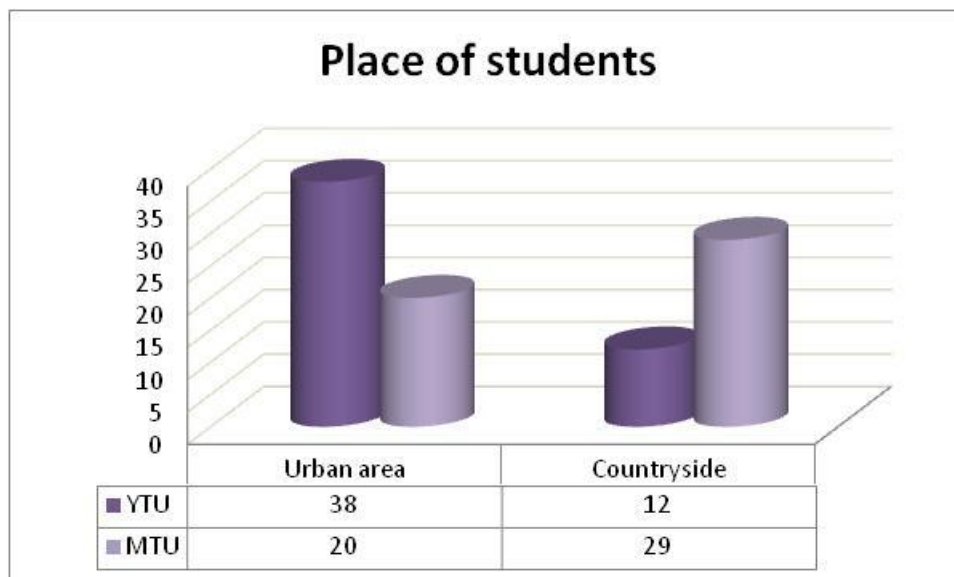


Figure 4.11 – Column chart results for question 15

Figure 4.11 explains about the students' regions that came to study to the COE. In this regard at YTU 38 (76%) students replied that they were from 'urban area' whereas other 12 (24%) came from 'countryside'. In this research, country side includes remote and boarder areas as well as rural areas. At MTU, 20 (40%) students responded they were from 'urban area' whereas 29 (58%) answered from 'countryside'. In total, there were approximately 60% of the students who lived in urban areas while the rest (40%) came from country side.

In Yangon, students were urban area more than countryside. In Mandalay, students were countryside more than urban area. From the qualitative study, the students from countryside in both universities were very near from the urban area. Only few students were from the State regions of Myanmar.

They also said that some qualified students still could not attend to COE instead of other universities because of the financial difficulties. There are very expensive costs to attend COE because of Myanmar's economic situation. So, students who got opportunity to attend COE and other particular universities should have helps and supports from different origins.

4.11 Suggested improvement at COE

Finally, they were asked what they were requiring from COE to know what COE should support the most or improve. The questions used were:

‘Q16. What kind of support should be provided by COE?’ and

‘Q17. What would you like to suggest for COE?’

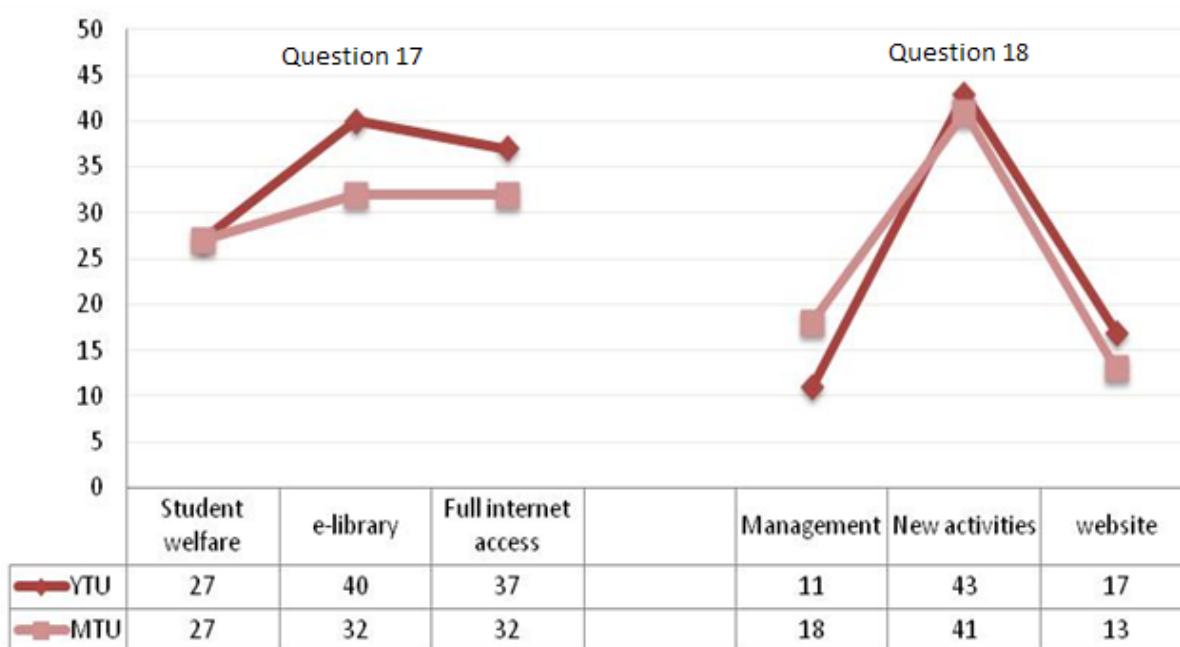


Figure 4.12- Line chart results for question 16 and 17

Question 16 in figure 4.12 provides information about the requirements of COE for the students from YTU, 54% students said that they wanted ‘student welfare’; 80% students, e-library; and 74% students, ‘full internet access’. Similarly, in case of MTU, 54% students wanted ‘student welfare’, 64% students, ‘e-library’; 64% students, ‘full internet access’. So, a majority of students want e-library system at the COEs while most of the students also want full internet access.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

Figure 4.12 for question 17 presents changes that students would like to see implemented by COE's. For this, 22% of students at YTU said that they want 'management of university' to be improved, 86% of students, 'new activities' and 34% of students, 'website for student-teacher interaction'. In this regard at MTU, 36% of students suggested 'management of university', 82% of students for 'new activities' and 26% of students 'website for student-teacher interaction'. Over 80% of the students from both COE's suggested improvement in new activities.

Moreover, from personal Skype interview, it is found that students from both universities want to implement new activities like students' festival and sports activities because they have many ineffective rules and regulations in Myanmar. Regarding e-library, nowadays, libraries have advanced to the computerization and digitalization system. So, users are able to get more information quickly. In this case, libraries from both universities still need to advance to e-libraries according to questionnaire results. Some of the students also suggested full internet access and more student welfare, although they could access internet and as well as student welfare. If they have student welfare, they can get information, advice and guideline easily, thereby getting more convenient student's life. They want to get one more thing, that are accommodations for all students due to transportation difficulty, as discussed above. And students also want better management of universities and the website for student-teacher interaction.

5 Proposals

This chapter will present about the suggestions and recommendations for COEs, design proposal to support financially disadvantaged students and HRM planning for MOST.

5.1 Suggestions and recommendations for COEs

In this section we briefly describe the main suggestions and recommendations for COE's derived from the analysis made to the survey results:

- To fulfill the weakness of curriculum and syllabus found in TUs for COE after comparing to other Technological universities
- To enhance skillful teachers and advanced teaching materials
- To upgrade libraries system and to link other digital libraries for accessing up-to-date academic publications
- To approach student-centered teaching method
- To organize a collaboration of Technological universities and local business companies for practical training of the students
- To facilitate local internship programs for COE students to have working experiences
- To create more opportunities for COE students to study as mobility students in foreign universities
- To enable all qualified students to access COE regardless of socioeconomic and geographic backgrounds.

5.2 Design proposal to support financially disadvantaged students

We propose a new human resource management model to assist the students from financially disadvantaged families and rural areas of Myanmar. The model was created after analyzing the data collected from the COE students of YTU and MTU. This design model will provide ways to develop the management system within the MOST to assist the students from financially disadvantaged families to be able to study at COEs.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

The new design allows MOST to investigate the following questions that will help to ensure that these students will have a chance to study at COEs.

- How many students from lower Myanmar and upper Myanmar are applying to the particular universities that are highly selective?
- How many eligible students are missing to apply those types of universities?
- How many students passed the matriculation examination with 450 marks or above?

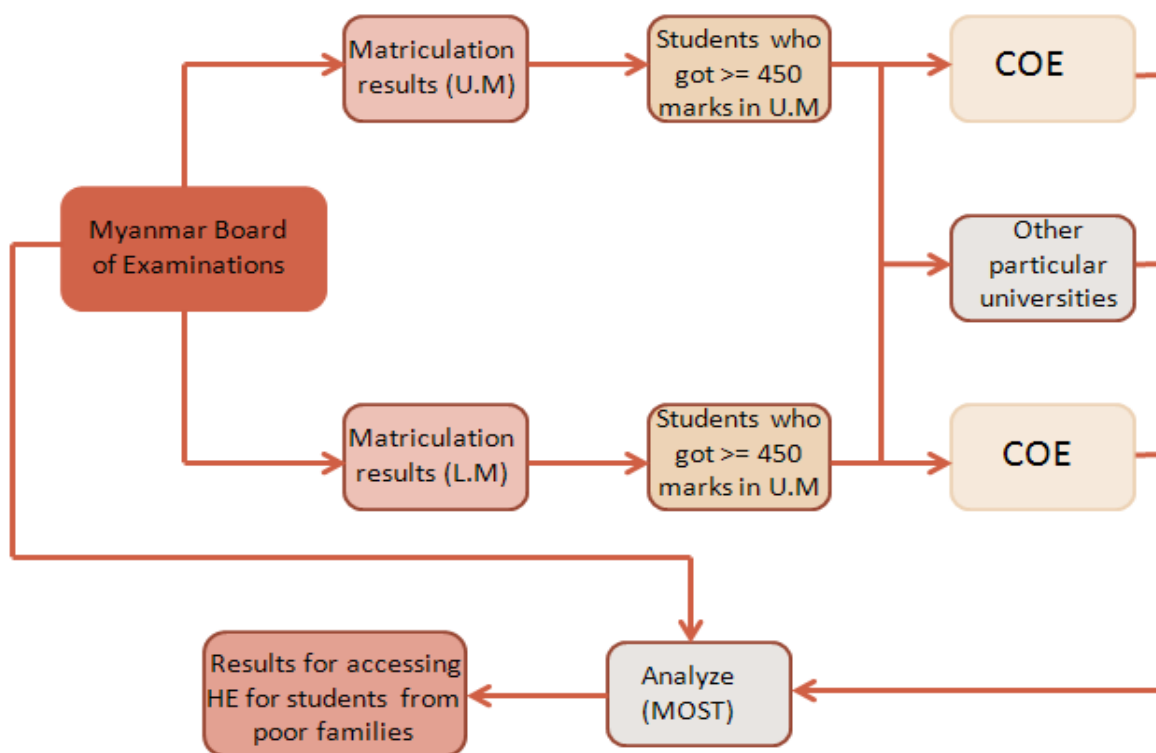


Figure 5.1 - Design of HRM model for the opportunity of accessing higher technology education for financially disadvantaged students

Myanmar Board of Examinations, under the Ministry of Education, will result out for the matriculation examination after checking answer sheets from lower and upper Myanmar examination centers. Students who got the test score of 450 marks or above in the Myanmar score system are eligible to join COE or any other universities of their choice.

Responsibility of Myanmar Board of Examinations in analyzing process is to make inquiries to particular universities for the index of admitted students. Once the lists from the

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

respective universities are acquired, they are compared with the list of the students who got 450 marks or above in matriculation examination. Then, a list of the students who are qualified but failed to get a place in particular universities will be produced. This database will allow MOST to reach out and communicate with those students in order to know if they would like to study at COEs as well as to provide information about COE and financial assistance.

MOST should communicate with those students and know the reasons why they could not join COEs; they would be enquired in such a way that MOST could help them to attend COEs by bridging with donor education foundations and by getting government support. Another fact is that, although several foundations are supporting some students from poor families to attend the universities, some students still could not communicate with those foundations because of the lack of knowledge about the donor foundations and scholarship programs. It is crucial to link those students to the donor foundations by providing appropriate information.

Moreover, stakeholders who have responsibility and authority for the basic education area need to notice who is qualified to go to COE in their regions and whether they want to study at COEs so that stakeholders may help them when they are in need for assistance. Figure (4.14) represents the proposed information support service model to assist the students from the poor families in rural areas who have lack of knowledge about donor foundations.

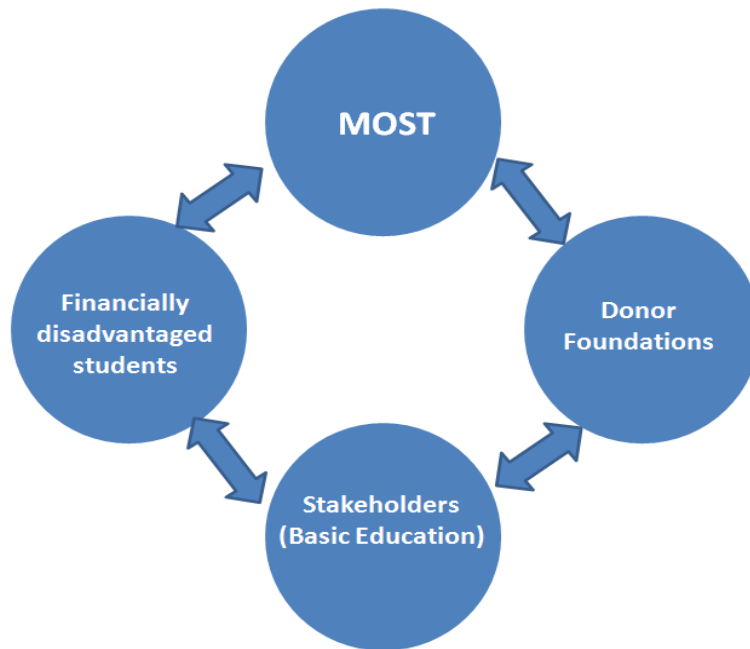


Figure 5.2 Information support service model for financially disadvantaged students

5.3 HRM planning for MOST

The purpose of HRM planning model is to improve the management system for the Ministry of Science and Technology (MOST) and to possess qualified teachers and staff in technological universities under MOST.

Activities under the human resource management plan of MOST are as follows:

1. Manpower planning
2. Recruitment
3. Performance management
4. Training & Development and
5. Teacher and student relations

These activities are presented as a reference model adapted from the Departmental Human Resource Management Plan of the Hong Kong Civil Service (Civil Service Branch, 1995).

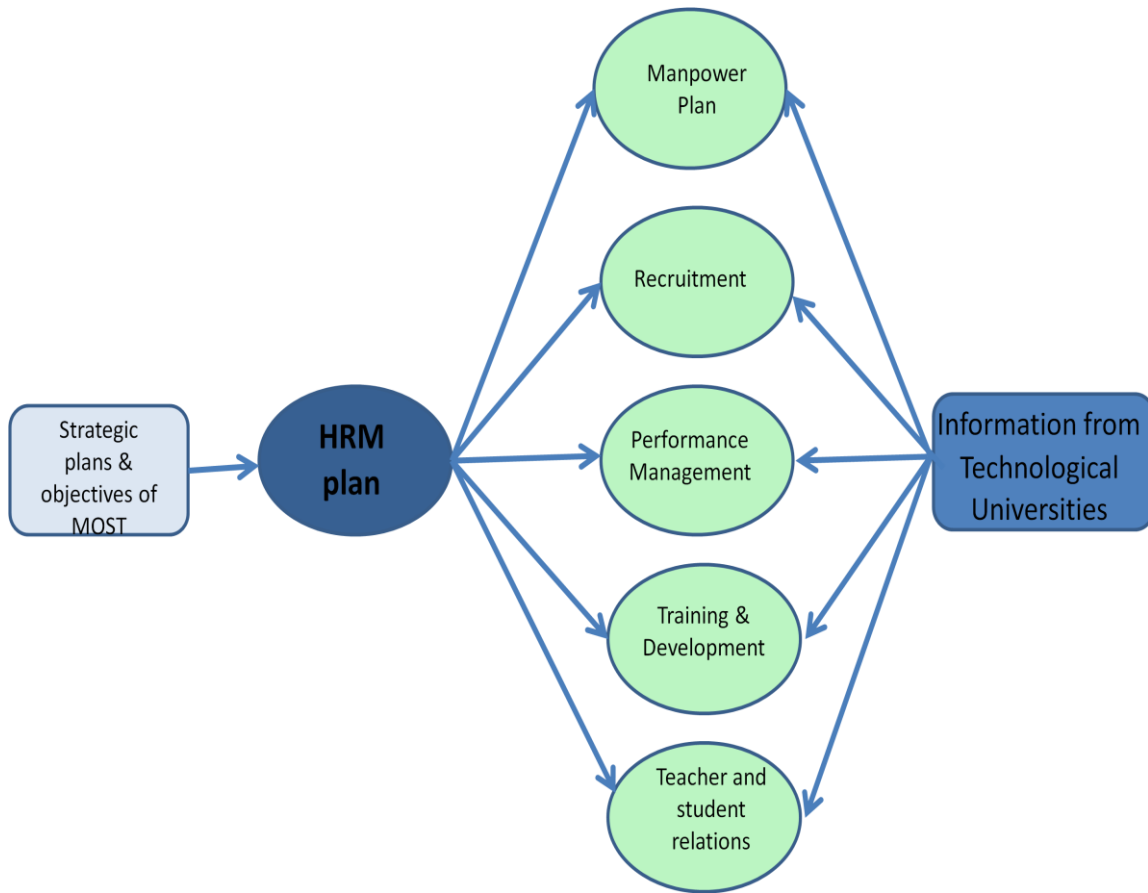


Figure 5.3 - HRM planning for MOST

5.3.1 Manpower planning

Manpower planning enables each department to adjust their manpower requirements depending on the number of enrolments of the course for each academic year. It should be generally considered in a long term perspective with an increasing level of demands. It refers to the process of identification of the vacancy of jobs by the organization, whether there is excess staff or not enough staff in each department. Manpower planning of MOST is a centralized management system where all the technology universities, colleges and training schools are under the direct management of the HRM department.

The following technology universities, colleges and training schools are under the manpower planning of the MOST currently:

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

Myanmar Aerospace Engineering University MAEU

University of Computer studies (UCS)

Technological University (TU)

Government Technological College (GTC)

Government Technical Institute (GTI) and

Technical High School (THS).

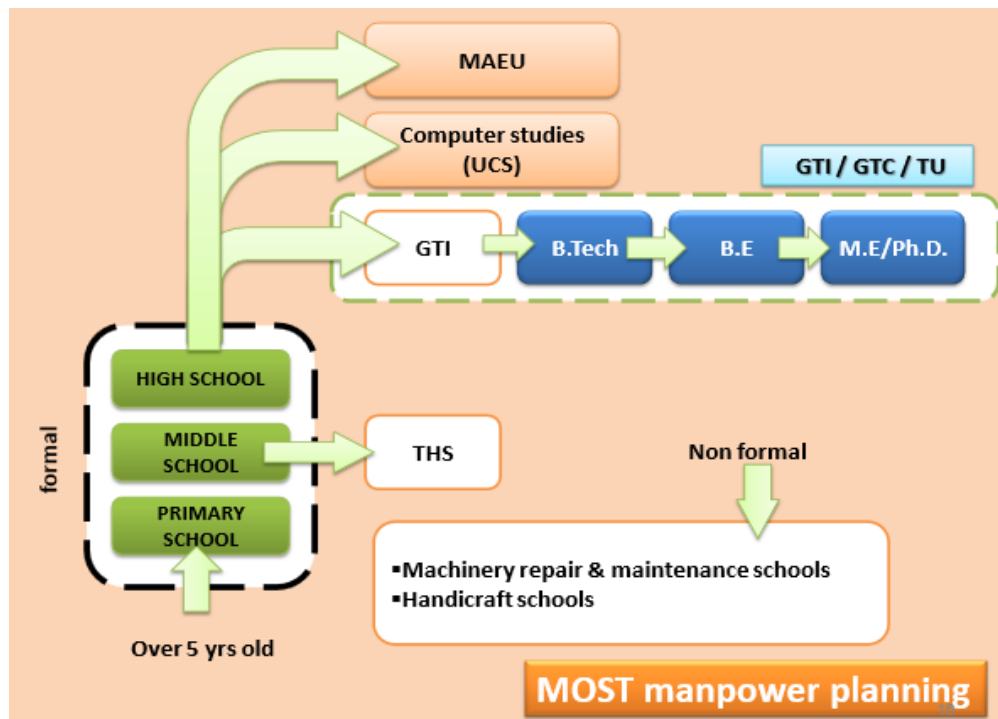


Figure 5.4 - Manpower planning of MOST (TVET, 2012)

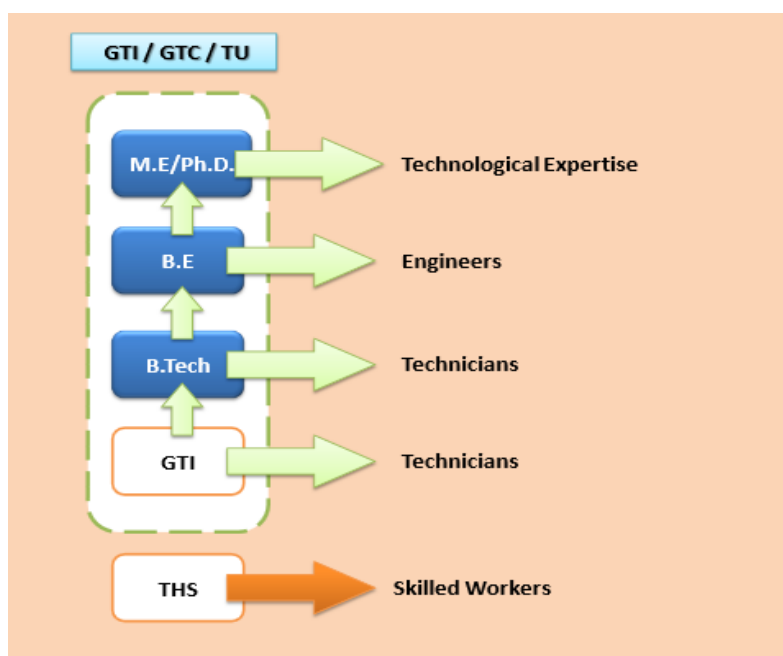


Figure 5.5 - Human resource development in future (TVET, 2012)

In order to fulfil the manpower requirements, there is the need to collect employee data and labour demands from different universities, colleges and training schools including COEs. Factors such as resignation and retirement are critical in the management of manpower planning and should be carefully considered. Otherwise there will be significant manpower requirements in certain academic years.

Manpower planning helps to identify:

- Category and number of staff that need to meet the requirements of each department in MOST.
- Training and development programs that need to be provided to current staff of MOST.

5.3.2 Recruitment

The recruitment process of MOST was normally very simple. Vacancies were advertised in newspapers and billboard of Technological Universities from different areas. After making an appointment to candidates, MOST selects candidates through writing tests and interviews. Then,

selected candidates serve their duties after signing a two years agreement. But in this part there is the need to ensure what are their target requirements, like levels of quality and rank according to the manpower plan, so, it will be an effective recruitment process and have assessable staff in the organization.

5.3.3 Performance management

Performance management system is crucial for the human resource management of MOST. It aims to improve and maximize individual performance of staff and ensure to manage their performance planning with the goals of each department and technological universities. It also provides the staff links to other HRM such as training and development sessions.

As current performance management measures, MOST selects staff and teachers every year through the examinations of specific courses combined with English language tests in order to study at higher academic levels. Moreover, MOST regularly promotes the staff to higher positions depending on their tenure and internal promotional examination results. By practicing these performance management measures, MOST can implement the performance based appraisal of teachers and staff that leads to increase the competency and performance of staff. In order to have positive impact on performance management system, MOST requires to take actions to define goals, provide feedback, review results and reward performance.

5.3.4 Training & Development

The world is changing rapidly not only in business but also in the education area because of the rapid and permanent improvement of technology nowadays. As a result, training and development are having an essential role. Organizations directly need to provide training programs to their staff related to their professional areas so that they will possess qualified manpower and achieve good organizational performance.

MOST has been offering training courses for the teachers and staff during vacation period before starting of new academic year. These training courses provide the teachers not only theoretical but also practical knowledge and skills required to teach new courses in particular subjects with the help of qualified teachers. Well trained teachers who attended the training

courses are asked to distribute their knowledge experiences to other teachers within their parent department. By this way, MOST instills the desired culture in the qualified teachers and staff. MOST also recruits some trainee students, with a suitable salary and a contract, to serve in MOST once they are graduate. Beyond that, MOST sends some of the qualified teachers to study at foreign universities for higher academic levels as well as research fellow scholars.

Training program should be well designed in order to:

1. Identify training course objectives
2. Organize training program (trainers and trainees, period of training time, training methods and materials, etc.)
3. Evaluate the training results.

Quality of teachers and staff will be improved through different training programs as training is the process of getting and improving knowledge, new technologies and skills required for a particular job. Therefore, training is essential for teachers and office staff when MOST has to make a plan for new courses. Through training programs, MOST will get qualified teachers and staff who will effectively assist students to develop knowledge, skills, collaborative work and communication under the teaching, supervision and guidance of these qualified teachers. Training is also an important part for the implementation of human resource development plan and to prevent bottlenecks in the operations of MOST with advanced technologies. In addition, the staffs that have already completed training will be valuable assets for MOST and will improve confidence on themselves in their working area.

5.3.5 Teachers and students relations

Students should be encouraged and motivated to communicate and discuss regularly and openly during the lectures with teachers as well as outside the classroom. There should also be regular meetings every month between teachers and some of students' leaders of each class. Therefore, students will have opportunities to raise their complaints and request their needs. Moreover, MOST should consider providing a student welfare service for information and advice as well as social welfare funds for students, teachers and staff for healthcare services.

6 Conclusions and Future Work

This study explored the requirements that need to be fulfilled for the quality assurance of tertiary engineering education at recently opened Centers of Excellence (COEs) in Myanmar. In order to define these requirements, students' perceptions for the quality of the education provided by COEs are being measured through a survey. The study also intends to create a new human resource management model which will provide opportunities for the students from poor socio-economic background to study at COEs, so that all qualified students across the country would have access to high quality tertiary engineering education regardless of financial background and geographic locations. Benefits and requirements of the COEs have been compared with other technological universities in Myanmar and empirical results were analyzed to identify the needs of COEs in order to fulfill the students' main requirements and to create improved human resource management models. A survey comprised of both qualitative and quantitative questionnaires was distributed to the target population from Yangon Technological University (YTU) and Mandalay Technology University (MTU) which are the recently established COEs in Myanmar. A new human resource management model for recruiting qualified students was created based on the survey results and recommendations for ensuring high quality education at COEs.

The study found that students' perception for COEs is high in both YTU and MTU. A vast majority of students from both universities said that COEs offer high quality education, academic facilities and learning resources. Students from YTU are enjoying better quality of education than students from MTU. The study revealed that YTU has been supporting 18 percent more academic facilities than MTU. However, students from MTU are enjoying a better classroom environment than YTU. Classroom environment of YTU is in very uncomfortable conditions as only 28 percent of students are satisfied with the conditions. Students are also satisfied with the programs provided and a majority of the students answered that they are studying the courses of their interest. Despite the fact that the overall reputation for education quality and academic facilities are high among the students, library services and bibliographic resources are considerably inadequate. Half of the COE students said that they were not going to library regularly because the bibliographic resources are not up-to-date. Even though most of the

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

COE students have said they can access the internet very well, they can only access it from certain areas but not everywhere in the campus.

One of the major research interests of this study is the inclusiveness of all qualified students to have access to COEs. The majority of the COE students suppose that all qualified students have a chance to study at COEs. However, qualitative study with the selected teachers and students revealed that not all qualified students can attend COEs. Interviewees, particularly the teachers at COEs and TU, claimed that there are some students of poor socio-economic background especially from the rural areas that cannot attend the COEs because of the lack of knowledge, encouragement and money. It is very important to reach out these students and provide financial aids so that poor students from different geographical areas can also have benefits of COEs as well.

This study provides a set of recommendations to improve COE model. It is recommended that library system in both universities should be improved. Advance e-library system should be introduced for a better access to bibliographic resources and better coverage of on-campus internet access should be provided for the convenience of study for the students. This study also provides the factors that need to be improved in the existing HRM management plans of MOST. Specifically, there is a requirement for an effective HRM model to offer opportunities especially for financially disadvantaged students. A new HRM model has been introduced in this regard and it is highly recommended to implement this model in MOST.

Currently, MOST is putting its efforts in improving COEs (YTU and MTU) in order to reach the Asian level in technological area, to support the objectives of COEs and to upgrade other technological universities as new COEs. Moreover, it aims to enlarge the opportunities for the outstanding students from financially disadvantaged families of rural areas. Recently, MOST has signed an official agreement with several foreign universities especially from Japan. Being one of the generous donor countries for Myanmar, Japanese government has been providing technical and financial assistance for upgrading of COEs. Financial supports from international donors have been mainly used to improve infrastructure and learning materials. MOST expected that COEs could reach an international level in 2030. We hope that this period may be shortened with the adoption of the suggested measures.

Enlarging the Opportunities of Accessing Quality Higher Education in Myanmar: the COE Project

This study explored ways to assist MOST in improving human resource management model of COE and provided a set of recommendations to implement in pursuit of high quality tertiary engineering education in Myanmar. However, there are certain limitations in data collection and analysis. COE model was only introduced in 2012 and first batch of COE students yet to be graduated. Therefore, the effects of COE model for the career opportunities and professionalism of COE students yet to be measured. Future researches especially for the post-graduation life of COE students should be conducted in order to measure the effectiveness and success of COE model.

References

- Aksnes, D., Benner, M., Borlaug, S. B., Hansen, H. F., Kallerud, E., Kristiansen, E., & Sivertsen, G. (2012). *Centres of excellence in the Nordic countries: A comparative study of research excellence policy and excellence centre schemes in Denmark, Finland, Norway and Sweden*. NIFU.
- Al Sulim, G. H. (2012). *Prediction of the Correlation between the Strategies of the Teaching Methods and the Multiple Intelligence of Some Graduate Female Students at Imam Mohammad Ibn Saud Islamic University*. *Procedia - Social and Behavioral Sciences*, 47, 1268-1275.
- Beaver, W. (1994). "Is TQM appropriate for the classroom?", *College Teaching*, Vol. 42 No. 3, pp. 111-114.
- Biggs, J., and Tang, C., (2011). The society for research into higher education, "Teaching for quality learning at university book", ISBN 13:978-0-33-524275-7.
- Blase, J., & Blase, J. (2000). *Effective instructional leadership: Teachers' perspectives on how principals promote teaching and learning in schools*. *Journal of Educational Administration*, 38(2).
- Burma Watcher. (1989). *Burma in 1988: There Came a Whirlwind*. *Asian Survey*, 29(2). A Survey of Asia in 1988: Part II pp. 174–180.
- Civil Service Branch (1995). *Human Resource Management*. Hong Kong Civil Service. Available from: <http://www.csb.gov.hk/english/publication/files/e-hrmguide.pdf> [Accessed 07 March 04].
- DESA (2014). About: *United Nations Office for ECOSOC Support and Coordination Human Resources Development*. UN. Available from: <http://www.un.org/en/development/desa/oesc/humanresources.shtml> [Accessed 07 August 2014].
- Fincher, C. (1994). "Quality and diversity: the mystique of process", in Fincher, C. (Ed.), *Defining and Assessing Quality*, Institute of Higher Education, University of Georgia, Athens, GA, pp. 84-94.
- Fox, D. (1983). 'Personal theories of teaching', *Studies in Higher Education* 8 (2), 151-163.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

- Galván, S. (2013). *Empowering Higher Education: A Vision for Myanmar's universities*. British Council. Available from: <http://www.britishcouncil.org/education/ihe/knowledge-centre/partnerships-collaboration/report-empowering-higher-education-myanmar-universities> [Accessed 05 May 2014].
- Harvey, L. & Green, D. (1993). 'Defining quality', *Assessment & Evaluation in Higher Education*, 18 (1), pp. 9-34.
- Harvey, L., Burrows, A. & Green, D. (1992). *Criteria of Quality. Quality in Higher Education Project* (Birmingham, University of Central England in Birmingham).
- Hellström, T. (2011). *Homing in on excellence: Dimensions of appraisal in Center of Excellence program evaluations*. *Evaluation*, 17(2), 117-131.
- Kettle, B. and Sellars, N. (1996). "The development of student teachers' practical theory of teaching". *Teacher & Teaching education*, vol. 12, No. 1, pp 1-24.
- McCord, C., Simon, D. & Weil, C. (2013). *Report on the IIE Myanmar Initiative*, Institute of International Education, New York.
- Myat, A. K. (2012). *Current Status of Engineering Education in Myanmar*. Presentation at: 2012 Seoul S&T Forum. SST Forum Secretariat: Seoul.
- MOE (2012). *Panorama of Myanmar Higher education*. Available from: <http://www.myanmar-education.edu.mm/dhel-2/panorama-of-myanmar-higher-education/the-organization-structure-and-management-of-the-education-system/> [Accessed 01 March 2014].
- MOST (2013). *Demonstration for the Engineering Education System of the Ministry of Science and Education*, Unpublished internal document. Nay Pyi Taw: MOST.
- YTU (2013). *Yangon Technological university*. Available from: http://www.most.gov.mm/ytu/index.php?option=com_frontpage&Itemid=1 [Accessed 04 May 2014].
- MTU (2013). *Mandalay Technological university*. Available from: <http://www.most.gov.mm/mtu/> [Accessed 04 May 2014].
- Oo, M. (2013), *Educational Reforms and Challenges of Higher Education in Myanmar*. Available from: http://www.britishcouncil.vn/sites/britishcouncil.vn/files/ged_2013_day_1_roundtable_dr_myaa_oo.pdf [Accessed 18 June 2014].
- Sallis, E. (1993). *Total Quality Management in Education*, Kogan Page, London, ISBN 0-203-41701-1 Master e-book, pp 1-10.

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

- Salmi, J. (2013). *Reconstructing higher education in Myanmar*, Available from:
<http://www.universityworldnews.com/article.php?story=20130726144213232> [Accessed 10 March 2014].
- Tam, M. (2001). *Quality in Higher Education, Measuring Quality and Performance in Higher Education*, 7(1), 47-54.
- TVET (2012). *Myanmar Technical Vocational Education and Training system*. Available from:
[http://www.tda.edu.au/cb_pages/files/Myanmar_TVET%20system_16%20Dec%202012\(1\).pdf](http://www.tda.edu.au/cb_pages/files/Myanmar_TVET%20system_16%20Dec%202012(1).pdf) [Accessed 28 July 2014].
- UNDP (2014). *Human Development Report 2014* [online]. UNDP. Available from:
<http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf> [Accessed 07 August 2014].

Appendix A

Survey Questionnaire

1. You can access high-quality education by attending COE.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

2. You have access to academic facilities and learning resources in COE .

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

3. How often do you study in library?

☐ Never ☐ Sometimes ☐ Often ☐ Usually

4. You are satisfied with the bibliographic resources provided by the library.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

5. The Library system is up-to-date in COE.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

6. Study rooms in COE allow you more concentration in study.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

7. You can access the internet from university very well.

☐ Agree ☐ Disagree

8. COE can provide high quality education than other technological universities.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

9. What are the differences between COE and other technological university? (Choose as much as you can)

☐ COE can support sufficient academic materials to students

☐ COE students can get chance to learn from guest professors from foreign countries.

10. If you have more answers for question (9), please mention them.

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

11. What benefits can you get by attending COE? (Choose as much as you can)

☐ ASEAN standard education ☐ High quality learning materials

☐ Accommodation provided

☐ After graduated, COE students can get professional jobs.

12. By attending COE, there is a better chance to study in foreign universities as mobility students.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

13. The major point is that your studies match with your interests.

☐ Strongly disagree ☐ Disagree ☐ Neither agree/ disagree ☐ Agree ☐ Strongly agree

14. Do you think all qualified students can afford to attend COE?

☐ Yes ☐ No

15. If your answer is “NO”, please provide the reasons why they cannot attend COE. (Choose as much as you can)

☐ Lack of money ☐ Lack of encouragement ☐ Lack of knowledge

☐ If others, please mention them.

16. What types of support are you having to attend the COE?

☐ Support from family ☐ With the help of donor foundations in Myanmar

17. What kind of support should be provided by COE? (You can choose more than one)

☐ Student welfare ☐ e-library ☐ Full internet access

18. If you want to add more items for question (17), please mention them.

Enlarging the Opportunities of Accessing Quality Higher Education
in Myanmar: the COE Project

19. Where did you come from to study in COE?

- ☐ From an urban area ☐ From countryside

20. What would like to suggest for COE?

- ☐ Management of university ☐ New activities for students
☐ The website for student- teacher interaction
☐ If others, please mention them.
